1926

I & C

~~VOL~~

File No 362 & 1926

Sl No - 17

170

I&C 362-8 1926

17

~~Recently the~~ Research and Information Division has undertaken for the ~~Electrical~~ Electrical Industry a number of special studies of which the present one is the first. The work is being done in close association with the Electrical Development Department. Very good progress is being made with the study and it is expected that the report will be ready for publication in the near future. The Electrical Development Department is financing the study and the Research and Information Division is doing the work. The Electrical Development Department is financially supporting the study and the Research and Information Division is doing the work. The Electrical Development Department is financially supporting the study and the Research and Information Division is doing the work.

There is another aspect of the question which deserves careful study. Germany has a large number of workshops and in these days of rationalization it is important to see how the work of the various workshops can be correlated and overlapping reduced to a minimum. Besides a number of small shops we have

1. The Central Electrical Workshop
2. The [illegible] Shops
3. The Electrical Shops.
4. The Technical College Workshop.
5. The Electrical Engineering Workshop.

This question requires very careful investigation and study but it is hoped to get in touch with the Casting work of the Electrical Engineering Workshop. The aim is to find out exactly what special castings are made there and how they might be improved. The

woodwork and

My workshop may expect therefore to carry
out some of the existing repairs
and have very little
machine shop work for general odd
will be foundry work. The Tyning College
workshop might be amalgamated with the Central
Industrial workshop and even the wheel-
college training shop with the workshop
is within a few miles. The workshop need
not be merely reduced but developed.
Electrical side also would absorb into
Department. The workshop fully rationalised may
compare with the best engineering industries when it is working.
The training & development
work will cost money and a grant
should be made to cover the loss
overheads charges will accrue. After all the
workshop profits made to cover a deficit
often. Perhaps up with modern development
a steady capital grant of about £1000
with further sums as & when required
has been provided. Capital
also
Grant must also cover
apparent wages. The continuity
value of the existing
The Vans depot at Bow
Grant cutting the Vans hours and.

Vickers with neat pieces of directional metal work and long dividing and even some ornamental control is accepted the Draft will have the Chairman of Executive hands. All Gunt work arising with what is expected from the fine Workshops.

It is desirable that personally desired after making the Works quite [illegible]

1 The Engineer.
2 The Chief Engineer
3 The Chief Mech. Engineer
4 The Supt Loco Supt
5 Principal Engineering College
6 General Manager N.E.R.

The Supt of the Engineering workshops may be after the Secy.

7. If an outsider may be asked to serve with Civilian Power Suggest the Governor of H.M. Tool Manufacturing workshops or Commander of Special Flying Squadron.

Suggested

Suitable hands persons will be drafted in accordance with orders that may be passed. The expiring will perhaps take a little time but it is perhaps worth while. Meanwhile the preparation work such as the typing of the different names will be got ready.

calculated to help in the working out
endeavours of the scientific advancement
Country.

G.R.S. VI—G. 8]

THE GENERAL AND REVENUE SECRETARIAT.

PART II

Statement of Matter of Routine for the Month of.....193

SECTION INDUSCOM.

WD 0257—GPB—3,500—23-8-32

GOVERNMENT OF MYSORE.

DEPARTMENT OF INDUSTRIES AND COMMERCE.

Any please refer to G.1040.C

Enc 1 WR 13/4/37

OFFICE OF THE DIRECTOR,

Dated Bangalore, the 13th April *192* 7

FROM

C. RANGANATHA RAO SAHIB, ESQ., B.A., B.L.,
Director of Industries and Commerce in Mysore,
Bangalore (India).

WR 14/4

GEN. & REV. SECTT. 14 APR. 1937 DEVELOPMENT BRANCH

To

The Secretary to Government,
Development Departments,
Bangalore.

Ind 362-26-1.

SIR,

I have the honour to enclose herewith for favour of the orders of Government, copy of letter submitted to the Dewan by the Chief Electrical Engineer and myself in regard to the amalgamation of the Electrical and the Military Workshops with the Central Industrial Workshop.

I have the honour to be,

Sir,

Your most obedient servant,

C Ranganatha Rao Sahib

DIRECTOR.

SDN-2)

[P.T.O.

Dte. 362-26-3.

Bangalore,

No. Special memo no 214 14.4.27

4th A p r i l 1927.

6765

Amin-ul-mulk

Mirza Md. Ismail, Esq., B.A., C.I.E., O.B.E.,
Dewan of Mysore, B a n g a l o r e.

Sir,

Note on the Amalgamation of the Electrical and the Military Workshops with the Central - Industrial Workshop.

We have carefully considered the proposal for the amalgamation of the Electrical and Military Workshops with the Central Industrial Workshop.

We propose to consider at first the question of the amalgamation of the Electrical and Central Industrial Workshops. We are of opinion that this can be done with advantage, but we recommend that the Electrical Workshops at Sivasamudram and at Mysore which are equipped to carry on urgent work may be continued as at present.

FINANCIAL RESULTS OF THE AMALGAMATION

The financial results of the amalgamation of the Electrical workshops will be as follows : - According to the balance sheet for the half year ended December 1926, the total amount spent on wages in the Central Industrial Workshop is - - - Rs 13,432-4-0 which gives an average of Rs 2,220/- per month. The salaried establishment of the Central Industrial Workshop at present amounts to Rs 1,640-9-0. The Director of Industries has gone into the question of the reduction in the establishment of the Central Industrial Workshop with the Industrial Engineer and considers that the monthly cost of the work establishment can be reduced from Rs 2,200/- to Rs 1,600/- per month. The total daily wages can be cut down to Rs 64/- giving Rs 1,600/-

for 25 working days. The salaried establishment can be reduc -ed from Rs 1,640-9-0 to Rs 1,391-9-0. The total reduction in the permanent establishment of the Central Industrial Work- shop will therefore amount to Rs 849/-.

The Chief Electrical Engineer is of opinion that the - regular establishment of the Electrical workshop which now amounts to Rs 255/4 can be reduced to Rs 92-12-0 and the work establishment can be reduced from Rs 775/- to Rs 400/-.

In view of the miscellaneous character of the work that is turned out in the Central Industrial workshop it will be necessary to employ temporary labour from time to time. It is therefore considered advisable to provide a lumpsum amount on account of this temporary labour. A slight readjustment in the scale of wages and salaries will also be necessary as a result of the amalgamation. It is therefore proposed to allot a sum of Rs 386/- per month for these purposes.

The financial result of the amalgamation of the Electrical and Central Industrial Workshops is shown in the following - table -

CENTRAL INDUSTRIAL WORKSHOP

	Present	Proposed	Savings per month
Salaried establishment	1,640 9 0	1,391 9 0	249 0 0
Work establishment	2,200 0 0	1,600 0 0	600 0 0
Rs	3,840 0 0	2,291 9 0	849 0 0

ELECTRICAL WORKSHOP

Regular Establishment	255 4 0	92 12 0	162 8 0
Work establishment	775 0 0	400 0 0	375 0 0
	1,030 4 0	492 12 0	537 8 0
Grand Total	4,870 4 0	2,784 5 0	1,386 8 0
Miscellaneous Labour & Other expenses			386 8 0
		Rs	1,000 0 0

CAPITAL VALUE OF THE WORKSHOPS

The capital value of the Central Industrial Workshops

according to the latest Balance Sheet is Rs 70,890/- and the value of the Electrical Workshops is Rs. . . . . It may be necessary to have to incur a capital expenditure of - - Rs 4,000/- to Rs 5,000/- for the transport of the machinery from the Electrical Workshops and their erection in the Central Industrial Workshop.

WORKING ADVANCE

The Budget estimates of the Central Industrial Workshops submitted for the year 1927-1928 have been prepared on the - assumption that the workshop will be amalgamated with the - Electrical Workshops. A copy of the note sent along with the Budget Estimates is sent herewith. The opening balance for the year 1927-28 is estimated at Rs 84,800/-. A good part of this balance consists of Stock (Rs 41,000/-) and Liabilities and Sundry Debtors (Rs 38,286/-). It is feared however, that the existing stock has much depreciated in value and that a large portion of the liabilities and debtors will have to be written off. It will be necessary that a suitable working advance should be placed at the disposal of the amalgamated workshops. A separate reference as to the actual amount that will be required, will be submitted in due course.

ESTIMATE OF THE ANNUAL VALUE OF WORK

The value of work done in the Central Industrial workshops has ranged from Rs 30,000/- to Rs 40,000/- per half year (Statement 2). We may assume safely that the value of work for - every half year will be Rs 30,000/- or Rs 60,000/- per annum. The value of work done in the Electrical Workshops may be estimated at Rs 50,000/- per annum. The amalgamated workshops can will be able to turn out work valued at Rs 1,10,000/- per - annum.

ADMINISTRATION

We are of opinion that the administration of the - - -

(4) amalgamated workshops may rest in the joint control of the Director of Industries and Chief Electrical Engineer, so long as the present officers continue to hold their posts. In the event of any change, we suggest that the sole control may be transferred to the surviving officer.

AMALGAMATION OF THE MILITARY WORKSHOPS.

In regard to the question of the amalgamation of the Military Workshops, we enclose a note prepared by the Industrial Engineer showing the labour charges incurred at present and the value of the machinery therein. We suggest that (5) orders may issue for the transfer of the entire plant and the labour to the amalgamated workshop. After some experience of the work done in the workshops we shall submit proposals as to the reductions which may be effected in the establishment. We have no doubt that we shall be able to reduce the establishment by at least one-half.

(6) We recommend that all repair works of all Government Departments except the Railway be executed in the amalgamated workshop.

(7) We recommend that the amalgamated workshop be called the "Mysore Government Workshops".

We have the honor to be,
Sir,
Your most obedient servants,

S. G. Parker 13/4/27
Chief Electrical Engineer

C Ramgamma Rao Saheb
Director of Industries. 13.4.27

DEPARTMENT OF INDUSTRIES AND COMMERCE

RECEIVED IN THE OFFICE OF THE DEWAN OF MYSORE.
Date Received.....
Number P.P.227.

D. O. No. G. 1045. C

OFFICE OF THE DIRECTOR

Bangalore, Dated the...14th..April..1927

Dear Sir,

Amalgamation of the Electrical and Military Workshops with the Central Industrial Workshop.

I am desired to send herewith the statements mentioned to have accompanied the letter submitted to the Dewan by the Chief Electrical Engineer and the Director on the 13th instant regarding the amalgamation of the Electrical and Military Workshop with the Central Industrial Workshop.

Yours sincerely,

M. S. Ramachandra Rao, Esq., B.A.,
Privatel Secretary to Dewan,
Public Offices, Bangalore.

STATEMENT I

BANGALORE POWER AND LIGHTING WORKSHOPS

PRESENT		PROPOSED	
Regular Establishment	Average cost	Regular Establishment	Average cost
Foreman 125-10-175	162½		
1 Workshop Accounts Clerk 35-3-65	51½	1 Workshop Accounts Clerk 35-3-65	51½
1 Time keeper 30-3-45	41¼	1 Time Keeper 30-3-45	41¼
	255¼		92¾

WORK ESTABLISHMENT

Asstt. Foreman	65
1 Moulder	38
2 Moulder Coolies (18) (17)	35
Head Turner	40
Turner	25
Turner Cooly	19
Head Blacksmith	41
Blacksmith	38
2 Hammerman (22) (15)	37
2 Smith Coolies (15)	30
7 Fitters (44)(33) (31) 3(29) (27)	222
3 Carpenters (50) (46) (36)	132
3 Carpenter Coolies (19) 2(17)	53
Rs	775

Rs 400

It is proposed to find out which of these men could be kept on and labour to the extent of Rs 375/- per month will be disbanded.

Pol

THE CENTRAL INDUSTRIAL WORKSHOP

BANGALORE

PERIOD (Half-year ending)	No. of work Orders Executed	Raw Materials consumed	Labour Charges direct	Other indirect charges	Value of work Orders Executed	Value of Works-in Process	Remarks
	1	2	3	4	5	6	7
30 6 25	463	17,819	14,800	* 22,120	40,894	58,798 / 33,624	*1
31 12 25	405	15,475	15,110	* 14,785	42,780	55,339 / 33,574	*2
30 6 26	284	17,730	12,996	15,391	41,486	48,262 / 32,836	
31 12 26	319	12,546	13,432	15,124	33,839	54,570 / 32,432	

*1. This increase is due to loss due to value of stock in Mysore reduced from Rs 8,000/- to Rs 1,000/- and a portion of Rs 1,487/- for bad debts and write-offs.

*2. Includes Rs 1,332-7-0 as a provision for bad debts.

THE CENTRAL INDUSTRIAL WORKSHOP, BANGALORE

Present			Proposed		
	Pay	Av.Cost		Pay	Av.Cost
1 Indl.Engineer (Half pay)	400-30-700	273-1/3	1. Indl. Engineer (Half pay)	400-30-700	273-1/3
1. Asstt. Supdt	150-15-300	241-2/3	1 Asstt. Supdtt.	150-15-300	241-2/3
1 Chargeman	80	80	1 Chargeman	80	80
1 "	75	75	1 "	75	75
1 "	70	70			
1 Timekeeper & Labour Clerk	35	35	1 Timekeeper & Labour Clerk	35	35
1 Material & Foundry Clerk	35	35	1 Material & Foundry Clerk	35	35
1 Accountant	87	87	1 Accountant	87	87
1 Asstt. Acctt & Cashier	45	45	1 Asstt. Acctt & Cashier	45	45
1 Asstt. Accountant	35	35			
1 Head Clerk	45	45	1 Head Clerk	45	45
1 Typist	35	35			
1 Draftsman	50	50	1 Draftsman	50	50
1 Storekeeper	60	60	1 Storekeeper	60	60
1 Sub-Store-keeper	35	35	1 Sub-store-keeper	35	35
1 Store Accountant	50	50	1 Store Accountant	50	50
1 Ledger Keeper	35	35	1 Ledger Keeper	35	35
1 Attender	20	20	1 Attender	20	20
3 Menial Staff	68	68	3 Menial Staff	68	68
1 Lascar	18	18			
1 "	15	15	1 Lascar	15	15
1 Lascar	12	12	1 "	12	12
		1420			1262

Establishment met from Wages Account

1 Machine shop leading hand	50			
1 Sub-Store Attender	31¼	1 Sub-Store Attender		31¼
1 Tool Keeper	23			
1 Stores Errand Boy	11			
4 Watchmen @ 13	52	4 Watchman @ 13		52
3 Sweepers	33½	3 Sweepers		33½
Conservancy Charges	20			
	220¾			116¾

Central Industrial Workshop.

List of Workmen on daily wages proposed to be retained as per Amalgamation Scheme.

No.	Name.		Daily Wages.	Remarks.
1)	K. Narayanaswamy Iyer.	..	2- 0- 0	
2)	M. Appasamy,	Moulder Maistry.	2- 6- 0	
3)	M. Nanjappa,	Miller. ..	2- 2- 0	
4)	Rajagopal,	Head Maistry.	2- 2- 0	
5)	A. P. Joseph,	Boiler Smith.	1-15- 0	
6)	Margasagayam,	Turner.	1-15- 0	
7)	Perumal,	Moulder.	1-13- 0	
8)	Narasimhiah,	Patter Maker.	1-12- 0	
9)	A. Devaraj,	Turner.	1-14- 0	
10)	Mohamed Ommer,	Fitter.	1- 9- 0	
11)	J. Peter,	Fitter.	1- 9- 0	
12)	Venkatasamy Naidu,	Turner.	1- 8- 0	
13)	Venkatachelam,	Moulder.	1- 6- 0	
14)	Gyanaprakasam,	Driller.	1- 7- 0	
15)	Srikantappa,	Tinker.	1- 4- 0	
16)	C. Munsamy Mudalier,	Tool-Keeper.	1- 4- 0	
			27-14-0	

MSS)

Central Industrial Workshop.

List of workmen on daily wages proposed to be retained as per Amalgamation Scheme.

S.No.	Name.		Daily Wages.	Remarks.
1)	Lakshmana,	Turner.	1-15- 0	
2)	C. Thambusamy,	"	1-14- 0	
3)	Ramiah, Asst:	"	0-12- 0	
4)	Govindappa,	"	1- 9- 6	
5)	Bhagyanathan, "	"	0- 7- 0	
6)	Sussnathan, "	"	0- 9- 0	
7)	Subraya, "	"	0- 7- 0	
8)	B. Anthoney,	Shaper.	0-14- 0	
9)	Syed Mir,	Planer.	0- 9- 0	
10)	Khandojee,	Cooly.	0-11- 0	
11)	Abdul Kudoos,	"	0- 9- 0	
12)	Abdul Kayoom,	Fitter.	1- 4- 0	
13)	J. S. David,	"	1- 4- 0	
14)	Loganatha Mudalier,	"	0-15- 0	
15)	Bhima Rao,	"	0-13- 0	
16)	Rangasamy,	Black Smith.	1-15- 0	
17)	Mannojee Rao,	,,do-	1-15- 0	
18)	Abdul Sattar,	"		
19)	Mogal,	Hose Shoe Maker.	Piece - Work.	
20)	Chengalrayan, H.M.		0-13- 0	
21)	Kuppa,	"	0-10- 0	
22)	Ganga.		0-11- 0	
23)	Madarsab,	Oiler.	0-10- 0	
24)	Perithambi,	Cooly.	0-11- 0	
25)	Sanjee Perumal,	"	0-10- 0	

Co 22-7-0

Rv

22-7-0

26)	Kandasamy,	Cooly.	0-13- 0
27)	Lakshminarayana,	"	0-14- 6
28)	Marisamappa,	Pattern Maker.	0-15- 0
29)	Ramasamy,	Moulder.	1- 3- 0
30)	Doorvasalu,	Chipper..	1- 0- 0
31)	Burnabas,	Boilers'	1- 5- 0
32)	Abdul Haffeez.		0- 5- 0
33)	A. Anthoney.		0- 4- 0
34)	I. S. Rajarathnam.		0- 4- 0
35)	Syed Abdul Rahiman.		0- 5- 0
36)	Sivaswamy.	..	0- 4- 0
37)	Mathias.	..	0- 6- 0

30-5-6

TEMPORARY Boys (to be taken into training section).

1)	Thangaveloo.	..	0- 9- 0
2)	E. D. Rose.	..	0- 4- 0
3)	Gopalasamy Naidu.	..	0- 2- 0
4)	Joseph.	..	0- 5- 0
5)	Abdul Jabbar.	..	0- 3- 0
6)	Lauranee.	..	0- 4- 0
7)	I. S. Sundareshan.	..	0- 4- 0
8)	G. T. Ramaswamy.	..	0- 5- 0
9)	Balasundram.	..	0- 3- 0
10)	Munsamy.	..	0- 2- 0
11)	Vasudeva.	..	0- 3- 0

2-12-0

52 2-12-0

12)	A. Zabbar.	..	0- 2- 0
13)	Somappa.	..	0- 3- 0
14)	Susenathan.	..	0- 3- 0
15)	Thagamansamy.	..	0- 3- 0
16)	Doravelu Mudalier.	..	0- 4- 0
17)	Mari.	..	0- 2- 0
18)	M. Rahimtoola.	..	0- 3- 0
19)	Stanials.	..	0- 3- 0
20)	Narasimhaloo.	..	0- 3- 0
21)	B. Venkatachar.	..	0- 2- 0
			4-8-0

MSS)

APP. F. VI. Gl.]

Issue & Entmk.

SUBJECT.....

.....

.....

Immediate.

Section 9 rc

File No. 362-26

Serial No 4

No. D 7286 & 28/4/27

Diary No. of letter replied to.....

General and Revenue Secretariat

( )

the *192*

To

The Govt. of Bo.

Sir

Date of issue 28.4.27

Signed by W Williams

With Refce to your note of the 4th April 27 about the amalgamation of the Electrical & Military workshops with the C.D.W. I am to request you to send up the Industrial Commissioner's note on the amalgamation of the Military workshop with the C.D. workshop which has been referred to in your note but not seen with it

List of enclosures.....

Yours etc

WP-26/4

Copied by.....

Examined by.....

Govt 18.4.27

Govt. Elec. Secy

over

Immediate.

DEPARTMENT OF INDUSTRIES AND COMMERCE.

GOVERNMENT OF MYSORE

D.O. No. G. 1098-A
Encs 2 7285

OFFICE OF THE DIRECTOR,

Bangalore, Dated the...29.th..April 1927.

Ite 362-26-5

GEN. & REV. SECRETARIATE
30 APR. 1927
DEVELOPMENT BRANCH.

Dear Sir,

As desired by you in your letter No. D.9286/ I. & C.362-26-4 dated 28th April 1927, I enclose herewith the Industrial Engineer's note on the amalgamation of the Military Workshop with the Central Industrial Workshop, Bangalore.

Urgent.
MP
29/4/27

Yours sincerely,

Ramaiah

V. Vedavyasacharya, Esq., B.A.,
Assistant Secretary to Government,
Development Department, Bangalore.

for

Copy of letter No. G1.385/c. Enc.2 dated 23rd February 1927 from the Superintendent, Central Industrial Workshop, Bangalore, to the Director of Industries & Commerce in Mysore, Bangalore.

I have the honour to inform you that, on 21-2-27, Mr. Joshi, the Assistant Engineer of the Bangalore Division, conveyed to me the information that the Dewan had ordered that I should forthwith go and inspect the Military transport workshops and submit a report as to how I can utilise the machinery and men and whether the work they are doing can be done here.

2. I inspected the workshops the same day in company with the Superintendent of the Military Stores. I made a list of machinery and men that are there. The lists are submitted herewith.

3. I consider that the machines can be made use of in the Central Industrial Workshop. The men cannot be employed, as it will be possible for us to do their work, viz., the repairs of the transport carts without any additional establishment. We are already manned for a greater output than we have been getting for the last two or three half years. Therefore, the whole establishment from Foreman downwards has to be disbanded in some equable way.

equitable ?

4. The cost of the machinery may be added on to our Capital at a certain value arrived at after valuing them allowing for depreciation and other charges.

5. As this matter has been represented to me as VERY URGENT, this may kindly be forwarded as early as possible.

"Copy"
Ramanuchary
for Director.

Staff in the Military Transport Workshops.

One Foreman on Rs.107/-		Rs.107- 0- 0
1 Moulder	Rs. 30/-	30- 0- 0
2 Smiths	Rs. 23/- each.	46- 0- 0
1 Asst. Moulder	Rs.15/-	15- 0- 0
2 Turners	Rs.23/- each	46- 0- 0
2 Carpenters on	Rs.23/- each	46- 0- 0
One Saddler	Rs.18/-	18- 0- 0
Two Rivetters on	Rs.13/- each	26- 0- 0
Two Drillers on	Rs.12/- each	24- 0- 0
6 Hammer-men on	Rs.13/- each	78- 0- 0
1 Blow Boy.	Rs. 6/-	6- 0- 0
		Rs.442- 0- 0

Mobile Staff.

2 Smiths on	Rs.30/- each	60- 0- 0
2 Carpenters on	Rs.23/- each	46- 0- 0
2 Fitters on	Rs.23/- each	46- 0- 0
		Rs.594- 0- 0

152

(Sd) B.G.A. Mudaliar
Superintendent,
C.I. Workshop, Bangalore.

Equipment in the Military Transport Workshops.-

1) Two lathes 8' bed in fairly good condition.
2) One lathe 5' bed small.
3) One wood-turning lathe. 8' bed.
4) One shaping machine.
5) One Drill.
6) One power hammer.
7) Blower.

P.T.O.

8) Motor.

Besides these there are some shaftings,

pulleys, etc.

(Sd) B.G.A. Mudaliar,
Superintendent,
C.I. Workshop, Bangalore.

"Copies"

APP. F. VI. Gl.]

SUBJECT.....

.....

.....

Section

File No.

Serial No.

Diary No. of letter replied to.....

No.

To

General and Revenue Secretariat

( )

the *192*

Date of issue.....

Signed by.....

List of enclosures.....

Copied by.....

Examined by.....

Sir,

I am directed to state that Govt desire that the Military workshops should be amalgamated with the Central Provincial & Electrical workshops in view of the obvious advantages that can be derived from the same. I am therefore to request you to favour Govt with your remarks and suggestions as to the arrangements which you would recommend to ensure adequate attention being paid to the work of the Mil. Dept. in the amalgamated workshop.

Yours

over

WD 01265—GPB—31,000— 24-12-25

D No. 10506 87 28-5-1927

To

The Chief Secretary

I am directed to state that Govt desire to amalgamate the Military workshop with the Can. Ind. Electrical workshop in view of the obvious advantages of the step, and request to be favoured with yr suggestions as to the arrangements necessary to ensure that adequate attention will be paid to the working yr Dept by the amalgamated workshop.

Telegraphic Address: "INDUSCOM."

In reply please refer to
No. J 1257

GOVERNMENT OF MYSORE.
DEPARTMENT OF INDUSTRIES AND COMMERCE.

OFFICE OF THE DIRECTOR,
Dated Bangalore, the 28th May 192 7

C Refer WR 2057 VS

SEC. & REV. SECRETARIAT
28 MAY 1927
DELHI
Bangalore (India) DEPT BRANCH

FROM

C. RANGANATHA RAO SAHIB, ESQ., B.A., B.L.,
Director of Industries and Commerce in Mysore,
Bangalore (India).

To

9 IC 362 - 26 - R.

The Secretary to the Government of Mysore,
Development Departments,
B a n g a l o r e.

SIR,

I have the honor to invite kind reference to this office letter No. G. 1040/C.of the 13th April 1927 forwarding proposals for the amalgamation of the Electrical and Central Industrial Workshops, and to request you to kindly let me know when the orders of Government may be expected on the subject.

I have the honor to be,
Sir,
Your most obedient servant,

H.K. Ramiengar
for Director.
(approved by Director)

Proceedings of the Govt. of H.H.
the Maharaja of Mysore.

Read -

Letter No.G.1040/C dated 13th April 1927 from the Director of Industries and Commerce submitting a note drawn up by him and the Chief Electrical Engineer proposing the amalgamation of the Electrical and Military Workshops with the Central Industrial Workshop.

Order No.D. 10648-51 S/ 31.5.27

Dated, Bangalore, 1927.

Govt. are pleased to direct that the Electrical and Military Workshops be -- amalgamated with the Central Industrial Workshop in view of the obvious advantages to be derived from the step. The Director of I & C is requested to take necessary steps at once to bring about the amalgamation, in consultation with the Chief Electrical Engineer and the Chief Commandant, Mysore State Troops.

Separate orders will issue on the several points raised by the Director of Industries and Commerce regarding the details of the amalgamation.

Development Secretary

To
The Director of I & C.
The Chief Electrical Engineer.
The Chief Commandant, M.S.T.
The Comptroller
Copy to Secy. P.W.D.

C. C. O. 1.]

MYSORE STATE TROOPS

Tel. Address.
STATROOPS.

No. G. 13370/362-27

OFFICE OF THE CHIEF COMMANDANT,

Bangalore, dated 22/6/1927

FROM

Lt. Col. C.R.H.P. Landon, C.B.E., D.S.O.,
Chief Commandant,
Mysore State Troops, Bangalore.

8766

DEVELOPMENT SECTION,
9 JUN 1927
362-26-8

To

The Secretary,
to the Govt: of His Highness the Maharaja of Mysore,
Development Department, Bangalore.

SIR,

7235 R — With reference to your letter No.D. 10506/362-26-6 dated 28th May 1927 asking for my suggestions regarding the working of the Military Workshop recently transferred to the Industries department, I have the honor to state that as the responsibility for and control of the Workshop rests with the Industries department, I have no suggestions to offer. I would, however, request that the work of this department may be attended to as speedily as possible.

WR 23/6/27
WO 24/6

I have the honor to be,
Sir,
Your most obedient servant.

C.R.H.P. Landon
Lt. Col.,
Chief Commandant,
Mysore State Troops.

RB

APP. F. VI. (1).]

SUBJECT.....

.....

.....

Section 9L

File No. 362-L

Serial No. 9

No. D. 491 9/14/7/37

Diary No. of letter replied to .....

General and Revenue Secretariat

( )

the *192*

To

The Dir. of Ord.

Date of issue 14.7.37

Signed by P. Hc

Sir

In continuation of G.O. No. D. 10648-37/9L 362-26-7 of 31st May 37 sanctioning the amalgamation of the Electrical & Military Workshops with the Central Mechanical Workshop, I am directed to request you to be so good as to submit very early detailed proposals including allocation of staff to give effect to the amalgamation.

Yours etc

List of enclosures.....

Copied by.....

Examined by .....

Tuker 11.7.37

over

Lim 11.7.37

DEV Secy

WD 0562 GPB—31,000—17-8-25

WD 491-F/14/7/37

Copy to C.E.E. for info.

TELEGRAPHIC ADDRESS :— "INDUSCOM."

In reply please refer to
No. D2-400-27

GOVERNMENT OF MYSORE.

DEPARTMENT OF INDUSTRIES AND COMMERCE.

OFFICE OF THE DIRECTOR,

Dated Bangalore, the 28th July 29th *1927.*

IRC 362-26-10

FROM

C. RANGANATHA RAO SAHIB, ESQ., B.A., B.L.,
Director of Industries and Commerce in Mysore,
(Bangalore India.)

To

29.7.27

N. Rama Rao, Esq., B.A., B.L.,
Secretary to Government,
Development Departments,
Bangalore.

GEN. & REV. SECRETARIAT, 29 JULY 1927 DEVELOPMENT BRANCH. 882

SIR,

With reference to correspondence ending with your letter No. D. 491/I & C 362-26-9 of the 14th July 1927 I have the honor to - state that Mr. S. G. Forbes, Chief Electrical Engineer inspected ~~the provision in~~ the Central Industrial Workshop and the accommodation available therein to locate the amalgamated workshops. He suggested the moving of the Government Art Workshop to the premises occupied by the Old Military Workshop and that the combined stores of both the workshops - Central and Electrical - may be located in the long shed which is now being occupied by the Government Art - - Workshop. He has also issued instructions to transfer the Foundry Section of the Electrical Workshop immediately and that no further orders should be entertained in the machine shop of the Electrical Workshop.

I shall submit a further report as soon as the amalgamation is completely given effect to and the ~~xxxxx~~ report will also include the statement of establishment required etc..

I have the honor to be,
Sir,
Your most obedient servant,

Director-in-charge

GEN. & REV. RECEIVED 29 JUL 1927

APP. F. VI. Gl.]

SUBJECT.....

.....

.....

Section 91c

File No. 362-26

Serial No. 2

No. D. 3355 of 23/9/25

Diary No. of letter replied to.....

General and Revenue Secretariat

( )

the *192*

To

The Dir. of Stn.

Date of issue 24.9.25

Signed by

Dear Sir

With refce to the discussions on the subject of the amalgamation of the Military & Electrical Workshops with the C.O.W, at the meeting held on the 22nd Sept. 1925, I am desired to request you to expedite further proposals regarding the details of the amalgamation, as promised by you.

List of enclosures.....

Copied by.....

Examined by .....

23.9.25

24/9

over

Dte 362-26-12

IN REPLY REFER TO
NO.....
ENCLO.

GOVERNMENT OF MYSORE
ELECTRICAL DEPARTMENT

OFFICE OF THE CHIEF ELECTRICAL ENGINEER,
Bangalore 3rd March 1928
(MYSORE, INDIA.)

Telegraphic Address:
"GOMED"

Codes Used
BENTLEY'S LIEBER'S
A. B. C. 6TH EDITION
BUSINESS TELEGRAPH CODE.

C.E.E's office
Cash No. 29658

GEN. & REV. SECRETARIAT
7556
7 MAR. 1928
DEVELOPMENT BRANCH.

The Secretary to the Government of
His Highness the Maharaja of Mysore,
Development Departments, BANGALORE.

5129 Sir,

GOVERNMENT CENTRAL WORKSHOP.

We have the honor to report that in accordance with Government Order No.D.10648-51/I.& C.362-26-27 dated 31-5-1927, the Central Industrial Workshop, the Workshop of the Bangalore Power and Lighting section of the Electrical Department and the Workshop of the Military Department have been amalgamated by transferring the establishment and such of the machinery and tools as were required, to the buildings belonging to the Central Industrial Workshop. The stores of the Bangalore Power and Lighting section and the Stores of the Military workshop have also been transferred to the Central Industrial Workshop, and are stocked in the building formerly occupied by the Show Room of the Art Workshop. The building was completely renovated and made suitable for this purpose.

2. The establishments of the Workshops and Stores have also been combined and the whole organization placed under the Industrial Engineer. If the Government Central Workshop, as amalgamated above, is to be treated as a separate unit, it will be, in our opinion, necessary to transfer the capital value of all machinery and stock belonging both to the Electrical Department and the Industrial Department to the Central Workshop under a

separate head in the Budget.

3. The stock and stores belonging to the Military Department have already been transferred to the accounts of the Central Industrial Workshop. The closing balance of the Bangalore Power and Lighting stores on the 31st January 1928 was Rs.94,313-5-6. The estimated value of the Stocks, Stores, tools, work in process, of the Central Industrial Workshop proposed to be transferred to the Government Central Workshop is Rs.40,811-6-6 and the capital value of the plant in the Central Industrial Workshop after allowing ~~the~~ for depreciation is Rs.68,647-11-1. In our opinion, it will be necessary therefore that the Electrical Department and the Industries Department should be given credit for the value of the materials belonging to them and transferred to the amalgamated unit.

Further, in the opinion of the Chief Electrical Engineer, it is not possible to separate the Stores belonging to the Bangalore Power and Lighting into, first, those which pass through the Workshop, and secondly, those which do not pass through the Workshop. If these stores were to be separated, then for example, insulators would be in one place and cross arms in another, cut-outs in one place and junction-boxes in another. This will result in considerable increased cost of storing, handling and issuing materials in retail lots, for the various works executed in Bangalore Power and Lighting.

4. It will be necessary, if the above is approved, to prepare an annual stores Budget and to provide for the workshop a working capital of not less than Rs.3,00,000/- solely in consequence of this amalgamation.

5. It may be pointed out that a considerable part of the work done in the Central Workshop will be carried out for Government Departments. We are of opinion that as the Workshop is financed by Government, there is no object in charging Government departments with any profit on work done for them and the finished goods supplied as well as work done will have to be charged to the departments concerned at cost price. The previous economy of the several workshops before the amalgamation was better than that obtained by having the materials and works supplied by private workshops; and the amalgamation has been made for the definite purpose of still further improving this economy and not merely to establish a Central Workshop on a profit-paying basis. If a profit is shown on the materials and work turned out by the Central Workshop, commensurate with the capital invested, then private concerns doing similar works will be justified in complaining that Government is working in competition with them at prices higher than theirs. It will therefore only be possible for the Workshop to earn profits on such private work as may be placed with it. This is bound to be relatively small, as compared with the orders of the Government Departments. The total profit in consequence earned by the Central Workshop will be insignificant when compared with the total capital at its disposal, and it is likely to be a subject of adverse comment.

6. Alternatively if the Central Workshop finances will be amalgamated with a Government Department, these difficulties will not arise. The department that can afford to finance the workshop can easily provide for the funds in its budget grant, and the accounts of the workshop be maintained as a separate unit, but consolidated with the accounts of the department concerned.

The accounts of the amalgamated concern are being pre-audited by Mr.M.A.Sreenivasan, Financial Assistant to the Chief Electrical Engineer pending final orders of Government, and the same system of test checks, issue of materials, passing finished work through stores, etc., as is in use in the Electrical Department has been adopted. This system was introduced into the workshop by this officer as desired by us from 24th August 1927. The organisation of the accounts of the amalgamated workshop, and the preaudit of bills thereof, the maintenance and inspection of the accounts, etc., undoubtedly involves additional responsibility and work on the Financial Assistant and the supervisory staff in the Financial Branch. For this purpose, we recommend the sanction of Duty Allowances as follows. The small extra cost will be met from the savings of Rs.19,560/- referred to in Para 8 below.

Financial Assistant to the Chief Electrical Engineer.	Rs.50/- (From 24-8-27 the date on which the Elcl.Deptt.system was introduced into the Workshop).
Accounts Assistant.	Rs.25/-
Chief Accountant (Superintendent, Pre-audit Section). ...	Rs.25/-
2 Accountants of Bills section. ...	Rs.20/-

This may kindly be sanctioned.

7. In either alternative the Central Workshop will rest in the joint control of the Director of Industries and Commerce and the Chief Electrical Engineer to the Government of Mysore.

8. As a result of the amalgamation, the cost of operation has in Establishment alone been reduced from Rs.55,164/- to Rs.36,504/- per annum, resulting in a saving of Rs.18,660/-. To this has to be added the saving of a sum of Rs.900/- per annum which is now being borne by the

19560
18120
1440

Workshop as charges of audit by the Comptroller's office which will hereafter cease. The total savings, after providing for the small duty allowances proposed in para 6 above will be Rs.18,120/- a year. The amalgamation has already resulted in considerable economies and as time progresses and more experience is gained, we are confident that still further economies in the cost of the work to the Government Departments will result.

We have the honor to be,
Sir,
Your most obedient servants,

C. Ramajanatha Rao Saheb
Director of Industries & Commerce.

Chief Electrical Engineer.

ARV.

19,560
18120
1440

120 x 12
1440

9K 362-20-5

OFFICE OF THE CHIEF ELECTRICAL ENGINEER
TO THE GOVT. OF MYSORE.

Bangalore 23-4-1928.

U. O. No. FB.1146

Refer- attached
This wife was
wanted by

GEN. & REV. SECRETARIAT
25 APR. 1928
DEVELOPMENT BRANCH.

D 8939

My dear Sir,

I submit herewith some details showing how savings of Rs.19,500/- are anticipated in the joint letter to Government, dated 3rd March 1928 regarding the Combined Workshop.

The Establishments - each consisting of 3 classes, Supervisory Staff, Stores Staff and Labour - of the Central Industrial Workshop, the Bangalore Power and Lighting Workshop and the Military Workshop before the amalgamation, stood as shown in Column 5 of the statement below. The strength of the Establishment to be retained after the amalgamation of the workshops was fixed after a careful consideration of the lists of Establishment and the men that would be required, taking advantage of the reductions possible on account of the pooling of the resources of the three separate shops and keeping in view the need for retrenchment and economy. Column 6 shows the cost of the staff that is proposed to be retained under each class of establishment after the amalgamation is completed. The saving anticipated is thus Rs.18,588/- and adding to this the Audit Charges of Rs.900/- that are being paid by the Central Industrial Workshop to the Comptroller's office, (which need no longer be paid as other arrangements for audit have been proposed in para 6 of the joint letter) the total anticipated savings would be Rs.19,488/-. Even if the Audit Charges are omitted from calculation the savings would be Rs.18,588/-.

Items.	C.I. Workshop.	B.P.L. Workshop.	Transport Workshop.	Total.	Proposed staff after amalgamatn.	Remarks.
Supervisory Staff.	905	316	-	1221	358	
Stores Staff.	-	210	-	210	452	
Labour.	1981	775	410	3166	2238	
TOTAL.	2886	1301	410	4597	3048	

Total Savings anticipated per month Rs.1,549/-

i.e., Rs.18,588 per annum.

Add Audit Charges Rs. 900/-

Total. .... Rs.19,488/-.

It may be added that savings to the extent of about Rs.1,200/- per month have already been realized under Labour charges, by reducing the total number of workmen. Two appointments in the Supervisory staff have been left unfilled resulting in a monthly saving of about Rs.200/-. But the full reductions provided for under Supervisory Staff and Stores Staff have not yet been given effect to pending orders of Government on the joint proposals now before them. On receipt of these orders, further savings will be realized.

Yours sincerely,

M.S. Srinivasan

N. Rama Rao, Esq., B.A., B.L.,
Secretary to Government, Development Depts.,
B A N G A L O R E.

A. F. W. VI. G1]

SUBJECT.....

.....

.....

Section D. Co.

File No.

Serial No.

No. K9365

Diary No. of letter replied to.....

General and Revenue Secretariat

( )

the *192*

Date of issue 19. 6. 28

Signed by M. V. M. Murthy

To Dear Mr. Subrahmanyam,

I am desired to request you to ~~please~~ intimate the average cost & expenditure incurred in the Transport Workshop before it was amalgamated with the Central Industrial Workshop. The matter is very urgent.

Yours Sincerely,

M.V.

List of enclosures.....

1876.

K. Subrahmanyam, Esq.,

Financial Assistant to the Chief Commandant

Copied by .....

Examined by .....

over

WD0325—GPB—30,000—26-5-27

MYSORE STATE TROOPS.

D. O. No. Fl. 5015

Tel. Address:
"STATROOPS."

OFFICE OF THE CHIEF COMMANDANT,

Bangalore, dated 19.6. *192* 8.

Dear Mr. Viraraj Urs,

Please refer to your D.O.No.Fl.9365 dated 19th June 1928.

The average monthly cost of expenditure on account of the Establishment charges of Mysore Transport Corps Workshop before amalgamation with the Central Industrial Workshop was Rs. 642/- per month as noted in Govt. Order No. G. 12095-7/Mily. 221-26-8 dated 16-5-1927.

Further details regarding the working expenditure of the Workshop has been called for and will be sent to you on receipt.

Yours Sincerely,

Viraraj Urs Esq, B.A., B.L.,
Assistant Secretary, Financial Secretariat.

MYSORE STATE TROOPS.

D. O. H 5039 Enone

Tel. Address:
"STATROOPS."

OFFICE OF THE CHIEF COMMANDANT,

Bangalore, dated 23rd June *1928.*

Dear Mr. Viraraj Urs,

In continuation of my D.O. reply dated 19th June 1928, furnishing figures on account of the establishment charges of the Mysore Transport Corps Workshop before amalgamation with the Central Industrial Workshop, I enclose herein a copy of the statement since received from the Commandant, Mysore Transport Corps, showing the details of the working expenditure of the Transport Corps Workshop.

Yours Sincerely,

To

M. Viraraj Urs, Esq, B.A., B.L.,
Assistant Secretary to Government
Financial Department.

Please file.
The total is Rs. 2310-5-10.

Mysore Transport Corps.

Working charges of Mysore Transport Corps Workshop for 1926-1927.

Sl. No.	Date	Names of contractors	Repairs renewal of carts	Royalty to Electric Depart-ment.	Contin-gencies	Excess Water charges	Tot
6.	12-7-1926.	Chamarajendra Water Works		"		3-4-0	3-4-0
7.	12-7-1926	Electrical Department		34-13-0			34-13-0
15.	2-8-1926	Chamarajendra Water Works				2-8-0	2-8-0
19.	7-8-1926	Electrical Deptt		37- 0-0			37- 0-0
23.	10-8-1926	-do-		39- 3-0			39- 3-0
6.	22-9-1926	Equipment bill from Military Stores	63-5-2				63-5- 2
7	-do-	-do-	82-13-8				82-13-8
48.	20-6-1926	Electrical Deptt		30- 2-0			30- 2-0
49.	21-10-1926	Chamarajendra Water Works				2-0-0	2- 0-0
58.	10-11-1926	-do-				2-12-0	2-12-0
10.	10-11-1926	Equipment bill from Military Stores received from Chief Commandant's Office.	251- 6-9				251- 6-9
74.	21-12-1926	Electrical Deptt		35-12-0			35-12-0
75.	29-12-1926	Chamarajendra Water Works				2- 8-0	2- 8-0
13.	28-12-1926	Superintendent, Military Stores	335-13-2				335-13-
15.	-do-	-do-	115- 4-6		13/-		128- 4-6
17.	3-1-1927	-do-	2- 4-6				2- 4-6
18.	-do-	-do-	10- 8-3				10- 8-3
19	-do-	-do-	240-14-9				240-14-9
86.	1-2-1927	Electrical Deptt		32-15-0			32-15-0
87.	-do-	Chamarajendra Water Works				1-12-0	1-12-0
20.	14-2-1927	Superintendent Military Stores	271-3-10				271-3-10
95	15-2-1927	Chamarajendra Water Works.				2-8-0	2-8-0
105.	16-3-1927	-do-				4-0-0	4-0-0
107	21-3-1927	Superintendent Military Stores	125-7-11				125-7-11
108	-do-	Electrical Deptt		34-13-0			34-13-0
109	23-3-1927	-do-		35;12-0			35-12-0
31	24-3-1927	Superintendent Military Stores	220-8-4				220- 8-4
119	16-4-1927	Chmarajendra Water Works				3-4-0	3-4-0
129	20-5-1927	Electrical Deptt		38-9-0			38-9-0
130	28-5-1927	Chamarajendra Water Works				2-8-0	2-8-0

P.T.O.

143. 24-6-1927	Chamarajendra Water Works		1-12-0	1-12-0
	Superintendent Military Stores Bill for May 1926		230-0-0	230-0-0

Total. 2310-5-10.

"Copy"

23/6/27.

Financial Assistant
to the Chief Paymaster, M. S. Troops.

2185

TELEGRAPHIC ADDRESS:— "INDUSCOM"

In reply please refer to
No. D2-400/27-28.

GOVERNMENT OF MYSORE.

DEPARTMENT OF INDUSTRIES AND COMMERCE.

OFFICE OF THE DIRECTOR,

Dated Bangalore, the 30th June *1928*.

FROM

C. RANGANATHA RAO SAHIB, ESQ., B.A., B.L.,
Director of Industries and Commerce in Mysore,
(Bangalore India.)

93/71

To

65

N. Rama Rao, Esq., B.A., B.L.,
Secretary to Government of Mysore,
Development Departments, BANGALORE.

SIR,

Government Central ~~Industrial~~ Workshop.

I have the honour to invite your kind reference to the joint letter of the Chief Electrical Engineer and myself (No.D2-400/27-28 of this office and No.29629 of Chief Electrical Engineer's office) of the 3rd March 1928, submitting report on the amalgamation and to request you to kindly obtain early orders of Government in the matter.

I have the honour to be,

Sir,

Your most obedient servant,

Ranganatha Rao Sahib

Director.

DRR/KSV.

Reps in advance
2 7 28

The file was referred to the Fin. Branch on 21st April 28
& has not been rec'd. back
2.7.28.

Fl Ref^d with compliments

3 7 28

This may be first mentioned to Develpt. Br. pl.

IN REPLY REFER TO
No. 33350
ENCLO.

Telegraphic Address:
"GOMED"

Codes Used
BENTLEY'S LIEBER'S
A. B. C. 6TH EDITION
BUSINESS TELEGRAPH CODE.

GOVERNMENT OF MYSORE

ELECTRICAL DEPARTMENT

OFFICE OF THE CHIEF ELECTRICAL ENGINEER,

Bangalore 12 July 1928.
MYSORE, INDIA

GEN. & REV. DEPTS. SECRETARIAT
13 JULY 1928
DEVELOPMENT BRANCH
427

The Secretary to Government
of His Highness the Maharaja of Mysore,
Development Departments,
Bangalore.

Sir,

Government Central Workshop

I have the honor to invite your kind reference to this office No.29658 dated 3-3-1928 and Industries and Commerce No.D2.-400/27-28 submitting certain proposals in connection with the working of the Combined Workshop and to request that early orders thereon may be kindly obtained and communicated as the full reductions provided under Supervisory and Stores Staff referred to in the last para of my Financial Assistant's D.O.No.1146 dated 23-4-1928 cannot be effected until orders of Government on the joint proposals are communicated.

I have the honor to be,
Sir,
Your most obedient servant,

Has not the file been sent to the 1st Member?

BR/KA. 13/7/28

for Offg. Chief Elec. Engineer.
(absent from H-q Hrs.)

The file has been sent to 13/7

11/7/28

14.7

[Form F VI. G1]

SUBJECT.....

.....

.....

Section DC

File No. 362-16

Serial No. 16

No. D 2190

Diary No. of letter replied to.....

General and Revenue Secretariat

( )

the *192*

To .....

Date of issue 20/8/28

Signed by H. H. Rama Rao

List of enclosures.....

Copied by .....

Examined by .....

Dear Sir

Govt Express Constituting a Committee to consider the several points requiring Settlement in connection with the amalgamation of the Central Industrial Electrical & Military Workshops and they desire that all outstanding questions relating to the Central Industrial Workshop and the future working of the amalgamated Workshop should be referred to the Com. Asm. Therefore to request you kindly to

over

Specify
~~Liaise~~ all pending questions
relating to the workshop and of the also
pointings
Other points ~~to be~~ you would recommend
referred to
for being placed before the Com

ajp

16.8.98

WEP
17/8

TELEGRAPHIC ADDRESS :— "INDUSCOM"

In reply please refer to
No. D2-400/27-28
Encls:— 8

GOVERNMENT OF MYSORE.

DEPARTMENT OF INDUSTRIES AND COMMERCE.

OFFICE OF THE DIRECTOR,

Dated, Bangalore, 22nd September 1928

FROM

C. RANGANATHA RAO SAHIB, ESQ., B.A., B.L.,
Director of Industries and Commerce in Mysore,
Bangalore (India.)

To

N. Rama Rao, Esq., B.A., B.L.,
Secretary to Government,
Developments Departments, Bangalore.

SIR,

With reference to your D.O. letter No.D.2190/ I&C 362-26 dated the 20th August 1928, requesting me to specify all pending questions arising out of the amalgamation of the Central Industrial Workshop with the Electrical and Military Workshops and also any other points that I would recommend for the consideration of the Committee that Government propose to appoint in the matter, I have the honour to state that the main points requiring the decision of Government have been indicated in the joint letter of the Chief Electrical Engineer and myself, No.29658 and D_2-400/27-28 dated the 3rd March 1928.

As a result of the orders of Government abolishing the Military Workshop and amalgamating the Electrical Workshop with the Central Industrial Workshop, the following action has already been taken.

(1) The plant and machinery of the Military Workshop as well as the Electrical Workshop have been removed and erected in the buildings of the Central Industrial Workshops.

(2) The materials and stores of the Military Workshop valued at Rs.6,394-15-2 have been transferred to the Central Industrial Workshops.

(3) A part of the establishment of the Military Workshop has been entertained in the Central Industrial Workshops

Workshops which is now doing all the work required by the Transport Section of the Military Department.

(4) The Workshop establishments of the Central Industrial Workshops and the Electrial Workshops were amalgamated and a reduction in staff of an approximate cost of Rs. /261-0-0 per mensem effected in the combined staff.

(5) The system of time keeping and the method of costing in use in the Electrial Workshops have been introduced in the Central Industrial Workshops at the request of the Chief Electrial Engineer.

(6) The Stores belonging to the Bangalore Power and Lighting section have been removed to a shed in the premises of the Central Industrial Workshops. This shed was renovated by the Electrical Department to suit its requirements.

The Stores of the Bangalore Power and Lighting Section have not yet been amalgamated with the stores of the Central Industrial Workshops. The electriaal stores are in charge of the Superintendent, Bangalore Power and Lighting and consist of a variety of materials, such as, insulators and other electrical goods, electrical cables, hardware etc. The total value of the stores is estimated approximately at a lakh of rupees but only a very small part of it, viz., stores worth about Rs.20,000/-, is likely to pass through the Central Industrial Workshops, the balance representing materials required for direct consumption by the Electrical Department. Mr. Forbes was of opinion that it was not possible to separate the stores belonging to the Bangalore Power and Lighting into (i) those which pass through the Central Industrial Workshops and (ii) those which will not pass through the Central Industrial Workshops. As this separation was not possible, he held that the Working Capital of the Central Industrial Workshops would have to be increased very largely, viz., to about 3 lakhs of rupees, to include the value of the stores directly consumable by the Electrical Department. He was also of opinion that it was not desirable that the Workshop should charge more than the cost price of goods to the different Departments of Government and that profits can only be made on private work that may be placed

placed with the Central Industrial Workshop.

He was also of opinion that as the profits earned would, in consequence, be incommensurate with the capital placed at the disposal of the Combined Workshop, it was likely to give rise to adverse comment and it was desirable, therefore, that the Workshop should be transferred to a Government Department.

The points for the orders and consideration of Government may therefore be summarised as follows:

(1) Whether it is necessary to combine all the stores, electriaal and otherwise, at present held in stock by the Superintendent, Bangalore Power and Lighting, with the stores that have ordinarily to pass through a mechanical workshop.

I beg to point out in this connection that the Central Industrial Workshop has been doing all the mechanical work required by the Electrical Department including the specially heavy Mettur Transmission Line Work for the last nine months without the combination of the stores. No inconvenience has been felt as a result of keeping the two stores separate. Mr. Forbes' objections in this matter are referred to in the third paragraph of the joint letter dated the 3rd March 1928. They are based entirely on the fact that it is not desirable to keep the stores that have to pass through a mechanical workshop and the purely electrical stores in two different places. This has now lost much of its objection as all the stores are located in a separate shed close to the Central Industrial Workshop.

(2) The method of costing that has to be adopted for work done for Government Departments.

Mr. Forbes is of opinion that there is no object in charging Government Departments with any profits and that finished goods should be supplied at cost price, and that profits can only be earned on private orders. This is entirely a matter of policy for determination by Government. In this connection I beg to

to submit for the perusal of Government a printed Report of a Committee on Government Workshops appointed by the Madras Government in 1926. In page 3 of their Report, the Committee state as follows:-

> " It would of course be quite possible for Government to
> " show a 'profit' on the outturn of their workshops, by raising
> " the overhead charges, so as to make them comparable with
> " those imposed by firms, but no advantage would be gained,
> " and, as pointed out above, Government would be making a profit
> " merely at their own expense."

(3) The plant and machinery transferred from the Electrical and Military Workshops to the Central Industrial Workshops should be evaluated and included in the Fixed Assets of the combined Workshops. The value of the plant transferred from the Electrical and the Military Wrokshops is Rs. 3860-0-0 and Rs. 274-8-0 respectively. (Vide Industrial Engineer's Note dated 24.9.28./125/A enclosed)

(4) The Workshop incurrs certain expenditure on supervision and establishment which is met from the "indirect charges" added as centage to the total expenditure incurred on material and direct labour on each item of work executed in the Workshop. The indirect charges, at present, are roughly equivalent to the charges on account of direct labour employed in the Workshop. A statement of these indirect charges is enclosed herewith. If the total amount of work done in the Workshop is increased; it will stand to reason that the proportion of the indirect charges to the direct labour charges will be below to what they are at present and the centage on account of indirect charges will be reduced. It is desirable that the proportion of the centage that should be charged may be determined by Government in order to avoid all disputes by Government Departments. I may state that the centage charged in the Government Workshops at Madras is determined by Government in consultation with the Finance Department. I think this procedure may be followed here also.

(5) In our joint letter it was proposed that the management of the bombined Workshop will rest in the joint control of the Director of Industries and the Chief Electrical Engineer.

In view of the fact that Government have since ordered (vide G.O.

G. O. No. dated) that all the work required by the Government Departments should be done in the Central Industrial Workshop, it is a point for consideration whether the Workshop may not be run by a Committee on which the Chief Electrical Engineer, the Chief Engineer, Krishnarajasagara, the Chief Engineer, Public Works Departments, the Director of Agriculture in Mysore as well as the Director of Industries & Commerce may be represented. I am personally of opinion that even if our original recommendation in respect of joint control should stand, an Advisory Committee consisting of the above mentioned Officers is desirable in order that the work of the Workshops may receive the benefit of their supervision and that all the work required by the Government Departments may be carried out in the Central Workshops.

I have the honour to be,

Sir,

Your most obedient servant,

C Ranganatha Rao Sahib

Director.

Encls:-
1 note with- 5 Sks -
1 note on overhead charges -
1 Printed Book.

CRS/CMR

No 125/A dt. 24.9.28
Enc: 5 Sheets in Tr.

Note:-

(1) The machinery and tools of the Transport workshop have been transferred to J.I.Workshop. The Superintendent, Military Stores has in his No. 517 of 29-10-'27 authorised me to evaluate them as these had no separate value, hence I have valued the items that are in use in the workshop, after examining their present condition and market rates. A list of plants and tools (from Transport workshop) not required for the workshop is also submitted herewith.

(2) The machinery and tools of the B.P.L. have also been transferred, but no values have been sent so far. I have also adopted the same procedure as in the case of Transport workshops. The total cost of the machinery and tools in use in the workshop belonging to b.P.L. will be approximately Rs. 3860/-0-0 as per details submitted. A list of articles not required is also enclosed herewith.

Bangalore.
24-9-1928.

INDUSTRIAL ENGINEER.

BNV/24-9/MbN.2.

Tools of Transport workshop required by C.I. Workshop.

1) Foundry tools.	Rs. 84	8	0
2) Spring balance.	15	0	0
3) Iron cart frame bending clamp.	10	0	0
4) Rubber tyre fixing hand machine.	5	0	0
5) Smithy tools.	80	0	0
6) Tool boxes and tools.	60	0	0
7) Vices.	20	0	0
Rs. =	274	8	0

BNV/24-9/SUP.4.

Tools and plant of Transport Workshop let with the Superintendent, Govt. Art Workshop, Bangalore:-

1. Furniture:- i) Tables 2.
ii) Chairs. 3.
iii) Cushion. 1.
iv) Rack. 1.
v) Broken screen. 1.
vi) Almirah. 1.

2) Induction motor. 10 H.P.complete with starter & ammeter.

3) Transmission shaft (left in position).

4) Screw-cutting lathe, 7" centre, with change wheels and chucks.

N.B.

Hay press returned to Military department.

BNV/24-9/SUP.4.

Tools and plant of Transport workshop not required by us:-

1.	C.I. Pipes of sizes.	
2.	Black-smith's bellows.	3.
3.	Tyre-bending machine.	1.
4.	Ladder broken and patched up.	1.
5.	Fan blower (not efficient)	1.
6.	Swage blocks &c.	
7.	Shaftings and pulleys of sizes.	
8.	Wood-turning lathe.	
9.	Drilling machine.	1.
10.	Screw-cutting lathes.	2.
11.	Grinding stone.	1.
12.	Hand drill.	
13.	Bench-saw machine.	
14.	Tripod with scales and weights.	
15.	C.I. Pulleys.	
16.	Carpenter's saw.	

These may be disposed of to the best advantage.

✓

BNV/24-9/SUP.4.

Machinery and tools received from B.P.L. workshop in use in C.I.Workshop

- : 0 : -

1) C.I. Moulding boxes.	450.	Rs.	450	0	0
2. Ladles of sizes.	4		5	0	0
3. Spirit level.	1.		1	4	0
4. Crow bars.	4.		1	0	0
5. Cover pattern in brass for C.I.Boxes.	1.		3	0	0
6. Mortar and Pestle.	1 set.		1	0	0
7. Cleaners of sizes.	20.		3	0	0
8. Moulding boxes.	29.		40	0	0
9. -do- 2 ft. sq.	8.		30	0	0
10. Fitters tools.			17	12	0
11. Black-smith's tools.			114	0	0
12. Carpenter's tools.			27	0	0
13. Turner's tools.			12	0	0
14. Cupola small.			200	0	0
15. Cupola big.			400	0	0
16. Lathe big.			900	0	0
17. -do- small.			700	0	0
18. Stocks and dies.			15	0	0
19. Pipes and fittings of cupola.			20	0	0
20. Punching & Shearing machine.			800	0	0
21. Twist drills &c.			20	0	0
22. Beltings of sizes.			100	0	0
		Rs.	=3860	0	0

N.B.

The above valuation is arrived at, taking into consideration the condition of articles as they were when we took them over. The book value for the above items in use will be obtained from the Superintendent, B.P.L.

B.V. Mundalias

BNV/24-9/SUP.4.

Machinery and tools of B.P.L. not required by Central Industrial Workshop, but brought over here by us.

- : O :-

1.	Blower (big) with counter shaft.	1.
2.	Drilling machine(In bad condition)	1.
3.	Drilling machine. (-do-)	1.
4.	Screw-cutting machine.(-do-)	1.
5.	Blower with countershaft.	1.
6.	Fitter's benches.	3.
7.	Polishing machine.	1.
8.	Grinding machine. (Without stone).	1.
9.	Circular saw with driving pulley.	1.
10.	Saw bench bed.	1.
11.	Shaftings, Plummer blocks & wall brackets.	1 set.
12.	27½ H.P. Electric Motor with pulley(to be sent back to them).	1.
13.	3" shafts with couplings with 3" plummer blocks.	
14.	Channel iron pillars.	
15.	Saw sharpening machine.	
16.	Casing and grooving machine.	
17.	Country lathe.	

Details of all articles taken from B.P.L. workshop is listed in a book. Copies of these are left with Superintendent, B.P.L. as well. These may be disposed of to the best advantage.

BNV/24-9/SUP.4.

V-v'69 A dt 14.8.28

NOTE ON OVERHEAD CHARGES.

Submitted to the Director of Industries and Commerce:-

The total wages paid and the total overhead charges incurred for last 3 years ending with June 1928 are noted below:-

1) July to Decr. 1925.	Wages.	15,110	1	1.	Overhead.	12,657	3	3
2) Jany: to June. '26.	"	12,995	11	6	"	13,298	2	9
3) July to Decr. 1926.	"	13,432	4	3	"	13,230	2	10
4) Jany to June 1927.	"	12,462	8	0	"	13,493	4	8
5) July to Decr. 1927.	"	15,422	6	7	"	14,892	10	4
6) Jany to June 1928.	"	12,600	9	6	"	12,994	8	9
Total.	Rs	= 82,023	8	11		80,556	0	7

From the above statement, it will be seen that the total amount of wages and the total overhead charges are almost equal and for the period ending June, it is a little more than the wages paid.

As material is a varying factor between wide limits and in many cases parties are willing to supply their own material, labour was taken as the basis for arriving at the percentage to be charged for meeting this overhead, so that there may not be loss in the working of the -- concern.

Accordingly, as the wages paid and overhead charges are almost equal 100 % on labour has been taken as the correct percentage and we are providing for 100 % on labour in all our estimates.

Up to February 1928, estimates prepared on this 100 % labour basis were sent to the Superintendent, Power & Lighting, Bangalore, and bills were sent as per this estimate, after the jobs were completed. These bills up to end of January 1928 have been paid at this rate.

From 1-2-1928, the Electric Department wanted estimates to be sent to them on net cost basis, i.e. actual labour and material and accordin ly for all orders placed after 1-2-1928, estimates based on probable actual labour and material were given and accepted, but articles ordered prior to 1-2-1928 and incomplete on 1-2-1928 were charged at the original estimated cost, which included the 100 % even though they were completed after 1-2-1928, hence this accounts for the large difference between the actual labour and material charges as booked, and as billed to party

party (according to these estimates).

These bills were returned by the Electrical Department on the plea that only 10 % on actual labour and material as agreed to between the Director and Chief Electrical Engineer, should be charged and not the estimated amounts.

Accordingly, modified bills have been sent to Bangalore Power and Lighting adding only 10 % towards overhead charges on the net outlay; by doing this our total amount of the bills sent as per accepted estimates (90 % of which were based on net cost basis) were reduced by Rs 1221-3-0

We are charging 100 % on labour for all other departments and -- private parties and in some cases more than 100 % is also charged, depending on the nature of works. As already explained unless this 100 % is obtained on all jobs, it will not be possible to prevent loss.

The total labour incurred on all the jobs done for the Bangalore Power and Lighting comes to Rs 3774-13-10 and with 100 % on labour, they have to pay Rs 25412-1-0 whereas with the 10 % overhead we will get only Rs 23739-15-0 Therefore the difference of Rs 1622-2-0 will have to be paid by the Electric Department, as per details noted below:-

Month.	Labour	Material	Total	With 10%	With 100%	Difference.
Feby: 28.	595-12-9	1141-13-4	1737-10-1	1811-7-0	2333-6-10	521-15-10
March 28.	697-1-6	938-0-9	1635-2-3	1798-11-0	2332-4-0	533- 9- 0
Apr: 28.	383-3-0	824-6-8	1207-9-8	1328-6-0	1590-13-0	262- 7- 0
May. 28.	383-10-10	471-8-1	855-2-11	940-11-0	1248-14-0	308- 3- 0
June. 28.	1715-1-9	14476-7-7	16191-9-4	17810-12-0	17906-11-2	95-15-2
	3774-13-10	17852-4-5	21627-2-3	23789-15-0	25412-1-0	1622-2-0

The above gives the full particulars concerning this question of overhead charges ever since we took up B.P.L. works.

Under the circumstances, the Chief Electrical Engineer may kindly be addressed in the matter with a request to sanction this amount.

BNV/14-8/MBN.3.

SUPERINTENDENT,
C.I.WORKSHOP.

Government of Madras

PUBLIC WORKS DEPARTMENT.

WS 25/9

G.O. No. 618 W., 12th June 1926

Workshops—Report of the Workshops Committee—Orders.

READ—the following papers :—

I

G.O. No. 1003 W., dated 10th September 1924.

II

Letter from the President, Workshops Committee, to the Secretary to Government, Public Works Department, dated Madras, the 19th January 1926.

We, the members of the Workshops Committee who were appointed in G.O. No. 1003 W., dated 10th September 1924, to make an enquiry into the possibility of co-ordinating the work executed in the several workshops of the Presidency with a view to securing economy and efficiency, beg to submit our report hereunto attached.

2. Since the inception of the Committee, the personnel has undergone certain slight changes. Mr. Stoney, Superintending Engineer, Public Works Department, was appointed in G.O. No. 1417 W., dated 15th December 1924, to succeed Mr. Molesworth, who proceeded on long leave, and Mr. Connell, Executive Engineer, Public Works Department, under G.O. No. 1117 W., dated 29th July 1925, took the place of Mr. Narasimha Ayyangar as Secretary to the Committee.

3. In considering the matters referred to us we have steadily kept in view the principle that efficiency should not be sacrificed to ruthless retrenchment, that a workshop crippled in material and personnel and left to its own devices to turn out poor and uneconomical work is a burden rather than an asset to the State, and that if a concern is worth having at all, it is worth equipping and maintaining in a proper state of efficiency. We have at the same time not lost sight of an objection that is sometimes raised of State interference with private enterprise. This point has received very careful thought, and we adhere to the view that the tax-payer has the right to demand that Government work is done in the most economical manner possible, though this may involve the retention and maintenance of Government workshops.

4. We desire to take the opportunity of recording our appreciation of the time and labour expended by officers in preparing their replies to the questionnaires referred to them. These replies are appended to our report and are so complete and exhaustive that we have been able to come to an unanimous decision in making our recommendations.

R. RAJA RAJESWARAN—*President.*
T. M. ROSS,
K. SURYANARAYANAMURTI,
R. F. STONEY,
G. W. MACONACHIE,
L. B. GREEN,
} *Members, Workshops Committee.*
C. B. CONNEL—*Secretary.*

ENCLOSURE.

REPORT OF THE WORKSHOPS COMMITTEE.

I.—Introductory.

The Committee consisting of officials and non-officials were appointed in G.O. No. 1003 W., dated 10th September 1924 (1) to examine the nature of the work executed in each of the workshops noted in the margin * and to advise as to how far the work done in the several workshops can be co-ordinated without unduly interfering with special departmental needs, so as to avoid waste of labour and money, (2) to define the work that can be carried out efficiently in each of the workshops, which it is considered

1. Public Works Workshops at Madras.
2. Do. Bezwada.
3. Do. Dowlaishwaram.
4. Workshops at the College of Engineering, Guindy.
5. Workshops of the Department of Industries at Madras.
6. Workshops in Jails.
7. Industrial Institute, Madura.

absolutely necessary to retain, (3) to examine how the Public Works Workshops, Madras, can be systematized and (4) to examine why the Public Works Workshops, Madras, are not able to carry out small works, such as repairs to bicycles of the several Departments of Government, at the rate at which private firms can do them and how this state of affairs can be improved.

II.—Losses in Government workshops.

Before proceeding to set forth our detailed recommendations on the questions that have been referred to us, we consider that it would be well if the misapprehension that prevails in regard to the so-called 'losses' in the Government Workshops at Madras, Bezwada and Dowlaishwaram were definitely and finally cleared. The demand for closing these shops undoubtedly springs from the fear that they are being run at a loss, and that the tax-payer is being asked to contribute large sums of money to finance unprofitable expenditure.

The Committee desire to state at once that no actual cash loss takes place, and that the apparent deficit between receipts and expenditure merely implies that the Government are getting their work done more cheaply than they should. This so-called 'loss' in a Government workshop rests entirely on the correct adjustment of the overhead charges, and unless the on-cost can be forecasted with precision, there is bound to be a difference between the 'Receipts' and 'Charges' side of the balance sheet.

Mr. Turner, Assistant Executive Engineer, Dowlaishwaram Workshops, in Appendix V of his reply to the questionnaire forwarded to him, deals very lucidly with the method and incidence of overhead charges as adopted at the Dowlaishwaram Workshops, and it is interesting to analyse this system which is also in vogue at Bezwada and the Public Works Workshops, Madras, and see how it actually works in practice. But before doing so, the Committee think it would be well if the tabular statement below were perused showing the overhead charges levied in the several Government Workshops in the Presidency :—

Names of shops.	Overhead charges.	Remarks.
1. Madras Public Works Workshops.	Twenty-five per cent on labour charges and 30 per cent on the total cost of outturn, i.e., labour running charges and materials.	
2. Dowlaishwaram Workshops.	Twenty per cent on labour and 30 per cent on total.	
3. Bezwada Workshops.	Twenty-three per cent on labour and 23 per cent on total.	
4. Industrial Workshops, Madras.	Forty per cent on labour running charges and materials with permission to charge 100 to 150 per cent for special rush jobs.	In G.O. No. 161, Development, dated 28th January 1925, Government have since ordered overhead charges to be recovered at a minimum of 40 per cent and a maximum of 100 per cent.
5. Engineering College Workshops, Guindy.	Thirty-three and one-third per cent on cost of production, i.e., on labour and materials.	
6. Industrial Institute, Madura.	A percentage that is left to be determined by the Superintendent according to the commercial value of the work subject to a minimum of 50 per cent on labour cost.	

It will be seen that there is great diversity in the on-cost rates, but that these charges are small when compared with those imposed by Engineering firms in Madras, which vary from 100 to 250 per cent. Moreover, in commercial firms the overhead charges are struck at frequent intervals whereas in the Government workshops they are struck annually and are based on the previous year's working, which seldom corresponds with the outturn of the following year. In practice, with a commercial concern, these differences would actually represent a cash loss. But in the Public Works Workshops at Madras, Bezwada and Dowlaishwaram which do little private work, no actual cash loss takes place since, unlike a commercial undertaking, the Government are the chief, nay, almost the sole consumers of the products of their workshops, and nothing, so to speak, passes outside the boundaries of their business. A commercial concern on the other hand exists for paying a cash return on the capital that is invested in it, and the shareholders who receive the dividends consume a very negligible part of the products of the undertaking. The point therefore that the Committee wish to emphasize is that there is no actual 'cash loss' on the transactions in the three Public Works Workshops at Madras, Bezwada and Dowlaishwaram, and that so far as the Industrial Department Workshop at Madras, which does considerable outside private work, is concerned, it is actually being run at a profit. In the Public Works Workshops at Madras, Bezwada and Dowlaishwaram, it is regarded as being almost as great a heresy to

make a profit as to be involved in a loss, and there seems to be no reason whatever why Government should run their concerns so as to make a profit at their own expense. There can be no *real* loss in these shops, unless the cost of production is actually higher than in the open market. But the Committee consider that ample evidence is available to prove the contrary, and that Mr. Roberts, Superintendent, Public Works Workshops, Madras, shows effectively in his two notes, dated 17th April 1923 and 8th August 1925, which are attached to this report that *ceteris paribus* the workshops are able to execute work at prices considerably lower than Engineering firms both in India and at Home. It would of course be quite possible for Government to show a 'profit' on the outturn of their workshops, by raising the overhead charges, so as to make them comparable with those imposed by firms, but no advantage would be gained, and, as pointed out above, Government would be making a profit merely at their own expense. We therefore feel that if at the outset the fallacy which has arisen by misapplying the term 'Commercial' with its implications of profit and loss to Government Workshops is dispelled, it will facilitate the consideration of the other questions which have been addressed to us.

III.—Work to be done in the shops proposed for retention.

Under this section of our report, we propose to deal in detail with the organization and internal economy of the several workshops in the Presidency with special regard to items (1) and (2) of our terms of reference. We consider that this will best be accomplished by taking each of the workshops in turn and examining their equipment and the nature of the work turned out in them, and making such suggestions as are deemed necessary for their improvement and efficiency.

(*a*) *Workshops at the College of Engineering, Guindy.*—These workshops form an integral part of the College of Engineering, and, in the opinion of the Committee, are as inseparable from the work and training imparted there, as are a Chemical or Natural Science Laboratory from an institution which pursues the faculty of Chemistry or Natural Science. Every Engineering College in England has a College Workshop, and if the College at Guindy is to be a modern institution, it must have its own workshops. The shops are designed for instructional purposes, and the Committee consider that they should be used solely for that purpose. It is not advisable to close these shops or to transfer the preliminary mechanical training that is imparted there to other workshops in Madras. The students on leaving the College do six months practical training in the Public Works Workshops, Madras, but the College shops are necessary to initiate them into the elements of workshops practice and design, and this part of their training they must receive at the College. We therefore think that the workshops at the Engineering College should be retained purely as an educational concern, and that these shops should not be required to undertake work that is ordinarily done by a regular Engineering workshops. With this end in view, we recommend that the plant and machinery should be reduced to the minimum required for instructional purposes. For instance, we do not think that seventeen lathes, etc., in the Machine shop are necessary. Six lathes seem to be ample for requirements, and the excess, together with the pneumatic power hammer referred to later, and any other plant which the Principal considers unnecessary, should be transferred to the Public Works Workshops, Madras. Nor do the Committee consider that the large staff which is now employed is necessary. One workshop instructor with a master fitter, a master carpenter, a master turner, a master blacksmith, and a foundry maistri seem to be ample. We do not see the necessity for ten carpenters and ten fitters, etc., in these workshops. In our view, it would be far better if the students are made to use their hands and do their own practical work and the master craftsmen are called in to advise or correct them only when they go wrong.

(*b*) *Jail workshops.*—The Committee have carefully examined this question and are of opinion that, like the College of Engineering, each jail must have its own workshops. Here again the purpose of Jail workshops is not to undertake work and compete with other Engineering workshops, but to provide instruction for prisoners and to develop Jail industries. The Inspector-General of Prisons has reported that no outside labour, except instructors, is imported into the Jail workshops, and it will be seen from the list of plant and machinery in the Jails and the type of foremen employed there, that those shops cannot seriously compete with other Engineering workshops, as none of them turn out any work requiring superior mechanical engineering skill. The Committee consider that Jail workshops must remain to provide instruction and employment for convicts, but that they should not be expanded by the addition of plant and machinery and the employment of skilled labour, so as to enter into rivalry with other institutions in the Presidency. Each workshop has its own definite purpose to fulfil and, provided there is no overlapping of work and these concerns are not run at a loss, they are useful and necessary and should be retained.

(*c*) *Workshops of the Department of Industries at Madras and Madura.*—The necessity for both these institutions was investigated by the Retrenchment Committee who recommended the abolition of the Industrial Institute at Madura, but found that the Industrial Workshops at Madras should continue as an inseparable section of the Department of Industries. The Indian Industrial Commission of 1918 in their report recommended that the Department of Industries should have a separate workshop and laboratory where tests could be conducted. The Government accepted the findings of the Retrenchment Committee in regard to the Industrial Workshops at Madras, but in G.O. No. 1284, Development, dated 14th July 1925, decided to defer action on the recommendations made in regard to the Industrial Institute at Madura until 1926, when the affairs of that institute would be reviewed after the first batch of long term

apprentices had completed their course. The Committee see no reason to differ from the previous findings. Both these institutions do a considerable amount of private work and the former is actually being run at a profit. As regards the latter, there is no other organized private Engineering workshop in the southern districts of the size and capacity of the Industrial Institute at Madura that can supply the requirements both of Government departments and private individuals. This workshop is now working at a cash loss, and the loss has been explained as being partly due to the fact that a considerable proportion of the employees are learners who are relatively inefficient and that consequently the skilled labour has to be diluted with apprentice labour, often resulting in loss, and imperfection in the work turned out. The Committee are not disposed rashly to close down these shops without a more careful survey of the causes. We therefore make the following recommendations so as to ascertain where the leakage actually takes place: (*a*) that the instructional work and the skilled work should be kept quite separate in the accounts; (*b*) that the cost of instructional work should be covered by the fees charged to the apprentices or, if the intention of the Government is to make the training as cheap as possible, to reduce the fees charged by the proceeds realized on the sale of the work turned out by the apprentices. But it must be recognized that this section of the shops will always show a loss, and the deficit must therefore be made good by an annual subsidy from the educational grant, after setting off the losses in the instructional section against the profits in the skilled section; (*c*) that the overhead charges in the skilled section may be raised to bring it on a par with those levied by private engineering firms referred to in the section of our report dealing with losses in Government workshops. So long as an Engineering workshop is performing the dual function of instructing novices and turning out skilled work, it will be impossible to adjudicate whether the losses are due to inherent defects in organization, or are merely the price of inexperience.

In regard to the Industrial Shops at Madras, as observed above, these shops are doing considerable private work and are actually being run at a profit. The chief reason that has been advanced for the abolition of this workshop is its proximity to the Public Works Workshops. The Committee have gone minutely into this question and are of the opinion that amalgamation would not result in reduction of staff or running charges, that it would complicate accounts, since the Public Works Workshops do a negligible quantity of private work whereas the Industrial shops do a considerable amount, and that it would interfere with the special departmental needs of the Industrial Department. In fact, the Committee do not see that any real advantage would accrue from the combination and incline to the view that so long as workshops serve the purpose for which they are intended and are not being run at a loss in a country where mechanical industries are backward, the better course would be to retain and develop existing institutions instead of abolishing them.

(*d*) *Public Works Workshops at Bezwada, Dowlaishwaram and Madras.*—The position of these shops in relation to one another is very similar to the central and running workshops on an open line of railway, or to carry the comparison further, the Public Works Workshops, Madras, is the base and the shops at Bezwada and Dowlaishwaram are the outposts with their own special work in regard to the repair and manufacture of floating plant, and the gearings, gates and shutters of locks, anicuts and sluices of the delta systems which they serve. None of this work can be sent away and has to be completed in the few months of the dry season which are available when the canals are closed. No private engineering firm or contractor, if such existed locally, would be able to deal with this variety of work or would be willing to guarantee under penalty the maintenance of suitable machinery and a competent staff to carry it out. The cost of the floating plant in each of these deltas goes into several lakhs of rupees, and a study of the replies of the Subdivisional Officers, Bezwada and Dowlaishwaram Workshops, to the questionnaire referred to them will show the value and variety of the work turned out in these shops. The workshops at Bezwada and Dowlaishwaram are thus absolutely essential, and in the opinion of the Committee abolition of either of them is out of the question.

Turning to the Public Works Workshops, Madras, these shops have a very large equipment of plant and machinery suitable for the normal work required by Government. None of the local firms have plant capable of dealing with large irrigation works such as the construction of heavy gates, shutters, etc., and what is just as important, none of them have the accumulated experience necessary for satisfactorily designing and executing such works. The Committee do not feel there is any need to labour the question of the necessity for retaining these shops. That they are indispensable is self-evident and, if they were abolished, Government would find it difficult to get their work done at all, or if they did succeed in doing so, it would be at very prohibitive cost. These shops must therefore remain as the Chief Government Workshops in the Presidency and should be fully equipped and kept up to date, and every department of Government on the look-out for workshops manufactures should be required to make inquiries at these workshops before placing their orders on outside firms. It is not practicable to reduce the technical staff in these shops beyond certain working limits, and the only remedy therefore is to avoid 'slack' periods by keeping the labour and machinery working at full capacity as far as possible by a steady and continuous influx of orders. This will be again possible as soon as Government resume their normal activities and expenditure on works, which were greatly curtailed during the war. We now pass to the next point in our terms of reference which bears on the subject of improving and systematizing the work carried out in the Public Works Workshops, Madras.

IV.—Recommendations to systematize the work executed in the Public Works Workshops, Madras.

(*a*) *Public Works Stores, Madras.*—The Committee have gone into this question with great care and hold the opinion that the first reform that is called for in the Public Works Workshops is the separation of the stores section from the purely mechanical section. We consider that it is uneconomical for an officer of the status and qualifications of the General Superintendent, Public Works Workshops, to spend his time dispensing small stores, and we think that a better arrangement would be to keep these two sections of the shops quite separate and place the stores under the direct charge of a competent Stores Superintendent, who should be subject to the general control of the Superintendent, Public Works Workshops. The type of Stores Superintendent we contemplate is a man not necessarily possessing high mechanical qualifications, but one who is familiar with the names of engineering stores, plant and machinery, and conversant with their uses. He should have sufficient practical experience to be able to suggest substitutes or alternatives to Executive Officers if he does not happen to have in stock the exact articles indented for and should be sufficiently qualified to be able to discriminate between good and inferior engineering stores. His relation to the General Superintendent should be that of an assistant and not a subordinate, and he should hold gazetted rank carrying a salary of Rs. 300 to Rs. 500 per mensem.

In regard to the heavy plant and machinery such as pumps, portable engines, tramway materials, etc., now stored in the Public Works Stores, the Committee suggest that as this plant is for the use of the whole department, and not merely for the Workshops, the interest and loss on such plant for idle periods, etc., should be borne by the departments as a whole, and not debited to the working of the stores.

(*b*) *Simplification of accounts.*—The Committee consider that there is a needless multiplication of accounts in these Workshops and that often the accounts are so complicated as to be intelligible only to an expert accountant. It is very necessary that the accounts should be greatly simplified and that the innumerable forms, registers and returns should be reduced to a minimum. We have perused with interest the report made by Messrs. Fraser & Ross, Chartered Accountants, on the accounts of these shops and hope their recommendations, which aim at simplifying the involved system of accounting now in force and placing it on a commercial basis, will be examined by the officers concerned, and, where acceptable to Government, will be carried into immediate effect.

(*c*) *Additional staff.*—The Committee have scrutinized the establishment list of the Public Works Workshops and do not regard it as excessive when compared with the staff employed by some of the Engineering firms in Madras. In fact, we consider that, owing to intensive retrenchment both in the Workshops and the Stores, a very heavy strain has been thrown on the Superintendent. He is now carrying on the work that was formerly performed by four officers, and this, in the opinion of the Committee, is both unwise and uneconomical, and must result eventually in inefficiency and injury to the Superintendent's health, necessitating the payment of leave allowances to him and salary to his successor. We therefore recommend that Mr. Roberts should be allowed an Assistant Superintendent who should be a fully-qualified Mechanical Engineer capable of rising to the post of Superintendent. In fact, the Committee consider that the officers at Bezwada and Dowlaishwaram should also be fully qualified Mechanical Engineers who should be eligible for the posts of Assistant Superintendent and Superintendent, Public Works Workshops, Madras, and should all be borne on the same cadre.

With the addition of a competent Superintendent for the Stores section and the appointment of a qualified Assistant Superintendent for the Workshops, we believe that the Public Works Workshops will be adequately staffed, and we recommend prompt action on these lines. A superior Assistant will set the Superintendent free to make personal inspections and give advice up-country where his presence is often necessary. At present, it is difficult for him to leave his headquarters without detriment to the work in the Shops.

(*d*) *Mechanical improvements necessary.*—The most pressing improvement that is called for in connexion with the plant in the Workshops is the scrapping of the three large oil engine prime-movers which are old, inefficient and very expensive in fuel consumption, and their replacement by electric drive. The Committee are convinced that if the Shops are to be economically and efficiently run, it is a *sine qua non* that the motive power should be electricity. We understand from the Superintendent, Public Works Workshops, that the Government have called on the Electrical Engineer to prepare plans and estimates for the necessary electrical equipment and that he has himself addressed Government for funds to carry out the work. The Committee strongly support the proposal, as it is anticipated that the saving in the cost of power will pay for the initial cost of installation in a period of about seven or eight years. The necessity for these central shops will become more pronounced as the contemplated Irrigation and Hydro-Electric Projects in the Presidency materialize, and the Committee think that no time should be lost in bringing the Public Works Workshops up to date and into readiness for undertaking the work necessary for the development of those schemes.

In addition to the above, certain of the drilling machines are worn out and need to be replaced in the Machine shop and two new belt-driven pneumatic forging hammers are needed in the Smithy. The one at the College of Engineering, Guindy, which is intended for demonstration to the students, but is too large for the purpose, and is seldom used, could with advantage

be transferred to these Shops, where the students during their practical course would see it in operation under actual working conditions. For the foundry a small cupola of about 5 to 10 cwt. capacity is needed for small urgent jobs, and for use when work is slack and it is necessary to keep down expenses. The Superintendent proposes a Green's "Emergency" type of cupola for this purpose, and the Committee support his demand.

The Superintendent recommends a new lay-out for the Workshops to avoid unnecessary handling and transport during the various stages through which the raw material passes in the process of manufacture. His estimate for these alterations and improvements amounted to 3½ lakhs in 1918 and is likely to be considerably more now. The new estimate promised by him may be awaited, but in view of the fact that labour in this country is still cheap and money is scarce, these improvements, though desirable, are not essential and may be postponed until the finances of the Presidency are better able to stand the cost.

V.—Why the Public Works Workshops, Madras, cannot carry out small works like repairs to office bicycles as cheaply as private firms.

The last of the points referred to us for consideration is to examine why small works of the nature of repairs to office bicycles, etc., cannot be carried out in the Public Works Workshops as cheaply as in private firms. Presumably the words "private firms" in the context mean concerns like "Bicycle shops", as it is most unusual for large Engineering firms of the standing of, say, Messrs. Jessop & Co., Parry & Co., Massey & Co., etc., to undertake repairs to bicycles. Repairs of this nature are generally carried out by small repair shops in which the staff and equipment are just enough for requirements, and do not consist of the heavy plant and machinery usually associated with large Engineering Workshops, in which highly skilled establishment is employed, and in which, consequently, the overhead charges are higher. Apart, however, from the necessarily higher on-cost charges, another factor that militates against cheap work in the Public Works Workshops, Madras, is the fact that the shops purchase the spare parts and accessories required for the repairs to bicycles in the open market and do not get the usual trade discounts (sometimes amounting to over 30 per cent of the cost) which are allowed to regular dealers. The shops themselves cannot of course manufacture the spares and accessories more cheaply, since they are standard articles which are produced in mass by firms carrying on this line of business. The Committee are therefore of the opinion that if repairs of this kind are sent to an Engineering workshops, the cost must inevitably be higher than that charged by small firms, but that it is no reflection on the Public Works Workshops for them not to be able to compete with petty dealers in such matters. We are disposed to believe that the Government now hold the same view, since in G.O. Mis. No. 765, Finance, dated 21st October 1924 (issued after the appointment of the Workshops Committee) they have decided that repairs to Government cycles may be entrusted to private agency. We therefore consider that no useful purpose will be served by pursuing this subject any further.

In conclusion, we hope that no time will be lost in putting our recommendations regarding the Public Works Workshops, Madras, into practical effect. An unduly heavy burden has been placed on the Superintendent owing to the drastic retrenchments that have been effected in his Workshops, and it is most necessary that adequate relief should be given to him as soon as possible.

It would be ungracious on our part should we complete this report without recording our high sense of indebtedness to our two Secretaries, Messrs. Connell and Narasimha Ayyangar, but for whose unfailing courtesy and assistance, the Committee would have found their task an extremely difficult one.

ANNEXURES.

I. Questionnaires to the several officers with their replies.
II. Questionnaires to the Superintendent, Public Works Workshops, regarding Public Works Stores with his reply.
III. Extracts from the Industrial Engineer's note to the Retrenchment Committee.
IV. Mr. Roberts' two notes, dated 17th April 1923 and 8th August 1925.
V. Mr. Howley's notes, dated 3rd November 1918 and 28th August 1919.
VI. Letter from the Secretary to Government, No. 1331, dated 16th October 1919.

B. RAJA RAJESWARAN.
T. M. ROSS.
K. SURYANARAYANAMURTI.
R. F. STONEY.
G. W. MACONACHIE
L. B. GREEN.
C. B. CONNELL.

NOTE BY MR. L. B. GREEN.

Though I am in full agreement with the conclusions arrived at by the Committee in Section III (*c*) of their report in regard to the Industrial Workshops at Madras, I find myself at variance with them on certain statements and suggestions made with reference to the Madura

Industrial Institute. I propose, therefore, to indicate, as briefly as possible, in a separate note, the extent to which I am unable to endorse the views of my colleagues, and the respects in which I differ from them.

Madura Industrial Institute.—There are no properly organized commercial workshops at Madura and as such the only way in which facilities can be provided for the training of artisans in the south of the Presidency is by the continuance of the Madura Institute and the workshop attached to it. The Institute is serving a very useful purpose in turning out skilled artisans of a type for which there is likely to be an increasing demand and moreover it also meets a real need in the southern districts where, as stated in the report, there is no other organized engineering workshop that can supply the requirements both of Government departments and private individuals. The aim of the Institute is to turn out skilled workmen, and for economic reasons and in order to ensure real practical training, the workshop is organized, as far as possible, on a commercial basis and the Superintendent accepts such commercial work as is suitable for the training of the apprentices. As the Institute is organized with education as its main object, it cannot possibly hope to work at a profit, but this is not a legitimate ground for criticism as educational institutions necessarily cost money. In fact, any cost which may be incurred on the working of the Institute must be regarded as the cost of training the pupils although every endeavour should be, and I consider is, made to run the Institute as economically as possible, and to reduce the cost of training a pupil as low as practicable, consistent with the provision of adequate and suitable training. The difficulty in showing good financial results from the running of the workshops, apart from the fact that a very large proportion of the employees are learners and as such relatively inefficient, is that the overhead charges are out of all proportion to the turnover, while the capital invested in buildings and machinery is so heavy that the workshop cannot, as a commercial undertaking, ever hope to bear the full depreciation charges on it. There are on the rolls about 120 apprentices who are paid daily wages while under training and a bonus on completion of their course. The stipend and bonus given to the apprentices amount to about Rs. 18,000 annually, only a small portion of which is recoverable by the sale of manufactured goods. In these circumstances, I consider that the most satisfactory course would be to give a definite subsidy for education sufficient to cover the estimated deficit on the working of the Institute during the year, the subsidy thus provided being based on the number of pupils under training.

Turning now to the proposals embodied in the report of the Committee, the main recommendation, as I understand it, is that the instructional work and the skilled work should be separated, and, with a view to ascertain where the 'leakage' actually takes place, it is advocated (*a*) that separate accounts should be maintained for the instructional work and the skilled work, (*b*) that the cost of instructional work should be covered by the fees charged to the apprentices, or the fees reduced by the proceeds realized on the sale of the work turned out by the apprentices, and (*c*) that the overhead charges in the skilled section should be raised. I am unable to agree with these proposals, which I do not consider to be practicable. Incidentally, the word 'leakage' does not seem to be very happily chosen, but if by it is meant the excess of expenditure over receipts, or in other words, the cost of training, I do not consider, as will be stated later, that this is in any way excessive. I am very strongly of opinion that it is not possible, or even desirable, to attempt to divide the instructional work and the skilled work into watertight compartments and to maintain separate accounts for each. Experience at Madura clearly points to the inadvisability of attempting to separate the accounts in the manner suggested or, in fact, of maintaining two separate sets of accounts in a single institution. Further more, the skilled workmen form an integral part of the workshop, and it is desirable that they should continue to do so, as otherwise it would not be possible to handle such a large range and volume of work and the training given to the apprentices would suffer. I do not consider that it would be feasible to calculate, with any degree of accuracy, the profit on a particular job earned by the skilled workman and the loss on the same job for which the apprentice or apprentices were responsible. Nor would such figures, even if it were possible to obtain them through the medium of an exceedingly complicated and expensive system of accounts, be of any real practical use or value. The suggestion in the report that the cost of instructional work should be covered by the fees charged to the apprentices is equally impracticable as will be recognized by any one familiar with the history of the Madura Institute. The question of whether the Institute is turning out artisans at too great a cost can only be decided by comparing the cost of training at the Madura Institute with that of similar Institutes elsewhere and suffice it to say here that evidence is not wanting to show that the cost of instruction at Madura compares very favourably with that of other institutions of a similar kind. The only way in which the cost of running the Institute can be sensibly reduced is by increasing the turn over. The Madura Institute is capable of dealing with a considerably larger volume of orders from Government departments than it is receiving at present, and I would suggest that the facilities afforded by the Institute for the execution of work should be brought to the notice of Government officers and departments in the southern districts as there is some reason to believe that in the interests of economy more of the Government work could with advantage be diverted to the Institute whilst, on the other hand, the larger the volume and the wider the range of work handled by the Institute, the better will be the training given to the apprentices. Finally, I do not consider that any further inquiry in regard to the desirability or otherwise of continuing the Institute, apart from the review of the question of its future which Government propose to conduct after the first batch of students have completed their training, is either necessary or called for.

Annexure I.

QUESTIONNAIRE.

I.—PUBLIC WORKS WORKSHOPS, MADRAS.

1. What is the constitution and organization of the shops at present? Give details of staff under Superior Mechanical Engineers, Foremen, maistris with pay and qualifications.

2. (*a*) Are the shops fully equipped so as to deal with all the operations that may be required for Government works of all departments to be done ordinarily in a large Engineering Workshops? Give a list of the principal machines in the shops, the prime-movers, number of forges, number and capacity of cupolas, etc.

(*b*) Are there no local firms that are equipped sufficiently to take up large works now done in the shops?

(*c*) Whot works were actually carried out during the past three years under—

(i) *large shutters* for irrigation works, etc., of a nature that local firms cannot do—Public Works Department and (2) other departments;

(ii) repairs of plant and machinery of (1) Public Works Department, (2) other departments and (3) local bodies; and

(iii) small works for (1) Public Works Department, (2) other departments and (3) local bodies?

(*d*) It is said that Public Works Workshops refused to undertake mechanical works for the Department of Industries for the following reasons:—

(1) the work was very small in volume and of a special nature involving an intimate knowledge of the working in the field of Specialist Machinery;

(2) small work of the nature could not be economically undertaken in a large workshop like the Public Works Workshops;

(3) the Public Works Department Shops could on no account undertake experimental work; and

(4) that the requisitions of the Industries Department would have to wait their turn for execution.

Are these objections real and cannot the Public Works Department Shops do all the mechanical works required by the Department of Industries? State reasons.

(*e*) The Industrial Engineer's Workshops as at present organized provide a training ground for such of the subordinate Engineering staff of the Department of Industries as are found to be deficient in practical experience and in particular training is imparted to apprentice boring maistris in the manufacture and use of boring tools. If it was decided that the Industrial Engineer's Workshops should be amalgamated with the Public Works Workshops, could such training be provided in the latter?

(*f*) Is there any rule under which urgent requisitions from other departments cannot be attended to as promptly as necessary?

Have there been any cases of other departments placing work with the shops complaining about delay or prices charged?

(*g*) Have any special mechanical designs been prepared in the shops for the Public Works Department and for other departments and local and private bodies?

Have all the works so designed been carried out in the Public Works Department Shops? If not, are any charges made for preparing the designs alone?

(*h*) Have any works been undertaken during the last five years for private firms or individuals? What is the value of work done in each year?

(*i*) Is any difference made in the levy of charges for (i) Public Works Department, (ii) other departments, (iii) local bodies and (iv) private bodies?

(*j*) Are the accounts kept on a commercial basis? If so, the profit and loss statement for the past three years may be furnished.

(*k*) Can the shops be made a common Government Workshops—like the Government Press—for all the departments of Government without being treated as belonging to one particular department? If so, what will be the changes necessary so as to undertake all the works done at the Industrial Shops to meet the special departmental requirements?

(*l*) Can the General Superintendent give an idea of the time generally spent by him in (i) designing, (ii) supervision of works under execution in the shops and (iii) direction in respect of such works? What proportion of pay of the superior staff is charged to the working of the shops and appear in the profit and loss account under Establishment charges?

(*m*) What percentage has to be added to the prime cost (i.e., actual cost of labour and materials) of work undertaken to cover overhead charges and thus arrive at the total cost of such work?

(*n*) A statement of outturn and profit and loss in the shops for the last seven years from 1916–17 is appended. Why was there such a heavy loss of Rs. 25,526 for the year 1918–19, and a huge profit of Rs. 66,542 in 1921–22 followed by the huge deficit of Rs. 34,156 in the next year?

(*o*) Is it a fact that the Public Works Workshops are not able to carry out small works such as repairs to office bicycles of the several departments at the rate at which private firms can do them? If so, how does he propose to avoid such a state of affairs?

(*p*) Have other departments been giving any of their work to private firms which could have been given to Public Works Shops?

(*q*) Are the plant and staff fully employed throughout the year, or are there slack periods due to seasonal or other causes?

(*r*) Can the efficiency of the workshops be improved by—
(1) increasing the turnover with the present establishment;
(2) employing additional superior staff;
(3) employing additional labour;
(4) installing smaller cupolas and plant for dealing with work during slack periods;
(5) electrifying the shops;
(6) scrapping antiquated plant and substituting machinery of modern design;
(7) any other means?

(*s*) What is the system of carrying out works in the shops, departmental or by contract? How does it compare with the system in private firms?

(*t*) Is there any standard schedule of rates for work done by piecework or contract in the shops?

(*u*) Did the entertainment of the two foremen sanctioned in G.O. No. 1605 W., dated 15th December 1917, tend to reduce the number of works done on contract labour and increase the number of works done departmentally? Give statistics if available. Has the abolition of the post of Assistant Superintendent as per G.O. No. 331 W., dated 20th March 1923, had any effect in the method of working in the shops?

(*v*) Has the present arrangement under which the Superintendent without a single qualified assistant is responsible both for stores and workshops led to any unsatisfactory results?

I.—PUBLIC WORKS WORKSHOPS, MADRAS.

REPLIES TO WORKSHOPS COMMITTEE'S QUESTIONNAIRE

By Mr. W. P. Roberts, General Superintendent, Public Works Workshops and Stores, Madras.

Question 1—

The Public Works Workshops and Stores premises cover an area of 8·9 acres, of which 77,609 square feet are roofed Workshop buildings and worksheds.

The actual average number of hands employed during the past official year was 452. The year 1923–24 was, however, one with the lowest output (except one) for the past eight years. At present the total number of hands is over 700, as there is a very large amount of urgent work on hand. The supervising staff consists of one General Superintendent, five foremen and three maistris on the permanent staff, as detailed in Statement A (attached). It will be noticed that the Foreman staff is about normal compared with that usual in other Engineering Workshops, but that the present reduction of the superior staff to one only, and to require him in addition to be responsible for the Public Works Stores division which supplies the Public Works Department throughout the whole Presidency and any other Government department that sends indents, also to tour the whole Presidency and give advice to any Government officer who may need it, is a state of affairs which exists nowhere else, so far as is known, in any workshop of this size. Even by working abnormally long hours and on Sundays and holidays, it is impossible to cope with all that ought to be done, and it must sooner or later result in a breakdown, either of the incumbent, or of the satisfactory execution of the work; most probably both.

As for permanent staff of maistris, the three officially sanctioned monthly paid posts are really those of minor foremen. The starting pay of the scales sanctioned for the Smithy and Foundry, though perhaps sufficient for a quarter of a century ago, are absolutely inadequate to now obtain a suitable new incumbent for these posts, if required.

For the actual petty supervision of the greater part of the work in progress, there are no permanent monthly paid 'maistris.' It has to be done by selecting the more intelligent of the daily paid men, and giving them somewhat higher pay as 'Chargemen' of the gangs working under them.

Question 2 (*a*)—

The Public Works Workshops have a very extensive equipment of both large and small machine tools and plant suitable for the normal work required by Government departments; an abstract list of the main items is attached in Statement B. It is difficult to guarantee that the

equipment is capable of dealing "*with all that may be required for Government works of all departments*" as asked, as it is impossible to say whether after nearly ten years most intensive retrenchment during the war, and after, there may not some time soon be sufficient funds available for greatly increased activity and extensions in all departments, and the Public Works Department in particular.

Defects in the existing equipment and lay-out are dealt with below in reply to questionnaire paragraph 2 (*r*).

Question 2 (*b*)—

None of the local firms have plant capable of dealing with heavy irrigation works as satisfactorily as the Public Works Workshops, and what is equally important, none of them have staffs with the accumulated previous experience in such work which is necessary for its satisfactory design and execution.

Question 2 (*c*)—

The number of work orders executed during the past three years were as below. (In some cases of large works several different workshops work orders may be opened to keep separate the cost of various parts of the work.)

Year.	Above jobs.			Below jobs (i.e., under Rs. 50).			Total number.	Total value.
	Public Works Department.	Other departments, etc.	Private parties.	Public Works Department.	Other departments, etc.	Private parties.		
1921–22	593	300	7	492	887	4	2,282	4,57,499
1922–23	499	274	6	317	929	3	2,028	2,32,710
1923–24	455	237	5	437	953	2	2,089	2,52,614

N.B.—'Private parties' in the above as understood under the heads adopted in the Public Works Department includes anything done for estates under the Court of Wards, and also for municipalities other than requisitions received through the Sanitary Engineer to Government.

Question 2 (*c*) (i)—

Some of the more important works completed during 1921–22 to 1923–24—

Serial number.	Description of work.	Cost.
	Public Works Department.	
		RS.
1.	Supply of 16 sets of steel lift shutters for Toludur regulator ...	2,96,994
2.	Supply of a pair of steel lock gates for Dummagudem lock ...	39,600
3.	Extensions and improvements to Divi Pumping station	20,230
4.	Supply of 3 sets of steel counterbalanced lift shutters for Poiney regulator	21,825
	Other Departments.	
1.	Reconstruction of Government Quinine Factory, Naduvattam ...	1,09,829
2.	Works done for Glue Factory, Madras	9,938
3.	Do. Government Soap Factory, Calicut	11,406
4.	Do. King Institute, Guindy	4,250
5.	Do. Medical Stores Depot, Madras	2,689

Question 2 (*c*) (ii)—

Repairs of Plant and Machinery—

Year.	Public Works Department.		Other departments.		Local bodies.	
	No.	Amount.	No.	Amount.	No.	Amount.
		RS.		RS.		RS.
1921–22 ...	91	64,981	13	2,525	...	...
1922–23 ...	98	41,048	18	5,494	3	1,364
1923–24 ...	97	47,918	26	3,625	1	621

Question 2 (*c*) (iii)—

Number of jobs in—

Year.	Public Works Department.	Other departments.	Local bodies.	Total.
1921–22	492	887	4	1,383
1922–23	317	929	3	1,249
1923–24	437	953	2	1,392

Question 2 (*d*)—

There was some correspondence in 1914 about the mechanical work for the Department of Industries being carried out in the Public Works Workshops. The main reason for the Public Works Department not wishing to undertake the work seems to have been that the Public Works Workshops staff had as much as they could manage to supervise their existing work, and that to permit the Department of Industries work to take precedence of all other works would seriously handicap Public Works Department and other departments' works. These reasons still hold good.

Question 2 (*d*) (1)—

That the work is very small in volume is not borne out by the Industrial Engineer's report and balance sheet for 1922–23 for the Department's Workshop which shows a gross turn-over (including about Rs. 61,000 of stores purchased and issued) of Rs. 1,02,917, of which Rs. 10,488 is for wages of workmen. (Incidentally the latter figure hardly agrees with his claim in paragraph 9 that the Workshop is so small that it has only 1 carpenter, 1 moulder, 2 machine men and 1 coolie for drilling.) The claim that their work "*is of a special nature involving an intimate knowledge of the working in the field of specialist machinery*" is not quite intelligible, as their work consists chiefly of repairs to pumping and boring machinery, and such repairs are constantly done in the Public Works Workshops for Public Works Department plant.

Question 2 (*d*) (2)—

That small work of the nature could not be economically undertaken in a large workshop like the Public Works Workshops is a very sweeping but unproved general statement, in view of the fact that small work is carried out for all departments in the Public Works Workshops at rates that compare favourably with the charges of private firms for similar work. That the charges might be higher is possible, as the Industrial Workshops balance sheet does not show the real on-cost on the work done inasmuch as depreciation on sub-head 5 "*Plants*" is not taken into account, nor interest on the capital cost invested, value of land, municipal taxes and various other things. If these are taken into account, the profit of Rs. 2,311 as shown would become a large loss and to cover this all their rates for work done would have to be raised.

As a matter of fact though the Department of Industries have had their own workshops for 15 years, many thousands of rupees worth of work, large and small, has been done by the Public Works Workshops for the Department of Industries, during the past six years or so, for their Pencil Factory, Calicut Soap Factory and Glue Factory in Madras.

Question 2 (*d*) (3)—

Experimental work could only be done in the Public Works Workshops, if the necessary funds and supervising staff are provided as the members of the existing staff already have as much as they can do.

Question 2 (*d*) (4)—

As far as possible, work in the Public Works Workshops is executed in rotation in the order in which requisitions are received, but in the case of repairs to breakdowns of plant they are given preference as far as possible. But with several hundred other different jobs in hand at the same time it is not possible for a limited supervising staff to devote their whole attention to any one particular job.

Question 2 (*e*)—

If the Department of Industries work is done in the Public Works Workshops, there seems to be no difficulty in arranging for such of their subordinates as are deficient in practical experience to gain experience in the manufacture and repair of boring tools and overhauling and testing of engines and pumps by attending the Workshops.

As for experience in the use of the tools, this can best be learnt in the field by seeing bore holes put down, and as the department is understood to always have a large number of such works in progress, their learners should be sent out to one work after another to gain experience of various sorts of drilling plant in actual operation under working conditions.

Question 2 (*f*)—

There is no rule stating that other departments' work is to be delayed, such works are given as much attention as Public Works Department works. But many officials forget that their demands are not the only ones to be dealt with, and nearly all say they are 'urgent' though in many cases the urgency is entirely due to lack of foresight and due consideration on their own part, by leaving until the last moment requisitions which could easily have been sent long before. But there is a rule that before starting any work, a complete detailed estimate of its cost should be prepared. This, if strictly adhered to, undoubtedly delays the work, but in the case of really urgent breakdown repairs it is generally ignored and the work is put in hand at once, and the pro-forma estimate is merely a statement of the actual costs incurred.

There have been very few cases in which complaints as to delay or high prices have any reasonable grounds. Many of the complaints are due to the fact that the indenting officers do not understand why 'centages' are added to the net cost of materials and labour, and contest what they look upon as an unauthorized surcharge. In the few cases in which there has been reasonable grounds for complaint as to high cost, it is almost invariably due to the high issue rates of certain items of Store stock, which still stand at the war-time prices at which they were obtained. Sanction of Government has been asked for to write these down to current market rates, as specifically ordered in the Public Works Department Code. But so far the sanction has not been accorded, and the matter is still under correspondence.

As for complaints regarding cycle repairs, this is dealt with in paragraph (*o*.)

Question 2 (*g*)—

Many hundreds of special mechanical designs have been prepared for the Public Works Department, a fair number for other departments, a few for local bodies, but practically none for private bodies.

In most cases, the works are executed in due course, though it may sometimes be years before estimates are sanctioned and funds are available to enable execution. But a good many are never carried out. No charge is now made for preparing the designs alone; such a charge was authorized in G.O. No. 1101 W., dated 24th July 1916, but abolished in G.O. No. 1508 W., dated 27th November 1917, owing to the numerous complaints that the officers concerned had no sanctioned estimates, nor funds to meet the debits.

Question 2 (*h*)—

The number of jobs done for 'private bodies' is given in paragraph 2 (*c*) above. Their value was—

		Rs.	
1921–22	... ...	5,579	Includes centage charges.
1922–23	... ...	1,460	
1923–24	... ...	1,034	

This includes work done for municipalities and for estates under the charge of the Court of Wards (mostly irrigation sluices). For really private firms or individuals, there was one only for a firm during the past three years, and less than a dozen for individuals, all departmental officers, and for each of these cases special sanction has to be obtained as it is the policy of Government that the Public Works Workshops, Madras, should not undertake work for private individuals if it can be done by the local firms.

Question 2 (i)—

There is no difference in rates for Workshops centages, but 10 per cent is added on the value of Stores stock materials issued for work other than for the Public Works Department; this centage is not credited to the Workshops but to the Public Works Stores Division.

Question 2 (*j*)—

The Accounts are maintained under the system approved by the Government of India Audit.

Balance sheets for the past three years are attached.

Question 2 (*k*)—

The Public Works Workshops already is a common Government Workshop, and executes any work asked for by all Departments of Government, even including those that have workshops of their own, such as the Jail, Salt Department, and College of Engineering and the Department of Industries, though the latter have not asked for anything much since their new workshop was constructed some 2 to 3 years ago.

Necessary changes to more conveniently and promptly deal with increased work are dealt with in paragraph 2 (*r*) below.

Question 2 (*l*)—

It is quite impossible to give any accurate figures for the proportion of the General Superintendent's time taken respectively by 'supervision,' 'direction' or 'designing,' as it varies from time to time, and in any case the duties are so interdependent.

Under existing conditions, all original scheming out of new designs has to be done at home out of office hours, and on holidays, as in the office and workshops the pressure of daily routine work, both Shops and Stores, is so continuous that it is impossible to quietly consider any new scheme.

All pays except that of the General Superintendent are charged in full to the Establishment charges of the workshops. The General Superintendent's pay is charged under G.O. No. 1166 W., dated 13th August 1921, one-third to the Workshops, one-third to the Public Works Stores Division, and one-third to 'consultation'.

Question 2 (*m*)—

No definite percentage can be stated as it entirely depends on the volume of the annual outturn; which, as shown on the attached diagram No. 1, may be twice as much in one year as in the next.

But the overhead charges do not vary directly in proportion to the outturn.

Question 2 (*n*)—

The outturn, profit and loss, rates and amounts of centages are plotted on the attached diagram No. 2.

The percentages to be added for general and indirect charges are decided in consultation with the Accountant-General, for the approval of Government and have necessarily to be based on the results of the previous few years' working, but the accurate estimation of a correct new rate is absolutely impossible, as no definite forecast of the probable outturn of the coming year is possible under the existing system for the allotment of funds for the execution of new works. There is a reluctance on the part of the Accountant-General to recommend a rate high enough to be sure of making no loss, as it is idealistically considered to be as bad or worse, to make a profit as a loss, and that all work should be charged for at exactly its actual cost, no more and no less. This in practice is almost impossible, in view of the impossibility of making an accurate forecast of the exact rate, and the only way to achieve this result would be to check the transactions at the end of each year's working and to raise a supplementary debit or credit, as the case may be, against the several thousands of works undertaken during the year.

Such supplemental adjustments would involve much clerical labour to prepare and would also be an intolerable inconvenience and source of trouble to the indenting officers. The loss in 1918–19 was due to the decrease in outturn during that year, and the simultaneous increase in overhead charges owing to the world-wide rise in prices at that time. So the rate for indirect charges was raised by 5 per cent in the next year, but there was still some loss, so the matter was again reconsidered, and in 1920–21 the discrepancy was reduced to less than 1 per cent of the outturn. The same rate was continued for 1921–22, but resulted in a profit of Rs. 66,542.

The rates were then reduced, but too much, as with the great decrease in outturn for the two following years, there were larger losses than before.

Even the rates adopted for 1920–21 and 1921–22 would have resulted in a loss in 1922–23 if they had been continued instead of having been reduced. The reason being that there were several large jobs started in 1920–21 for which the whole of the materials were obtained at the commencement of the job, but labour and machine work was only partly executed in that year and the balance in the next. But, under the present system, the whole of the centages on materials were credited in the Profit and Loss accounts for 1921–22, and during the next year there were no such credits against the materials actually worked on during that year.

Thus, a huge apparent 'profit' in 1921–22 and a 'loss' in 1922–23. I am of the opinion that in the case of large jobs lasting beyond the official year in which they were started, the centages on materials should be allocated to both years in proportion to the labour expended on the work in the two years. If this could have been done, there would have been a far smaller profit in 1921–22 and also some profit in 1922–23.

Question 2 (*o*)—

Cycle repairs are debited with the same rates of centage charges as all other works done in the Workshops and so are added to the cost of the locally bought component parts required for such repairs and the small amount of labour necessary for fitting them in place.

Though the locally-purchased components are obtained on the lowest quotations at some reduction below retail rates, the reduction is small compared with the huge trade discounts of about 30 per cent or more obtained by the importers. Thus, the cycle component dealers' profit is borne by the repair jobs done in the Public Works Workshops and also the Workshops own centage charges. This naturally makes the cost higher than the private repairers would charge, especially the smaller ones who have no overhead charges worth mentioning and are content with their profit on the components and something for their labour in fitting up.

As in G.O. Mis. No. 765, Finance, dated 21st October 1924, orders have recently been passed that Government cycles can be repaired by private agency if desired, and need only be sent to the Public Works Workshops for final survey before being condemned as of no further service, there is no need to go deeply into the matter further than to remark that the only satisfactory way of ensuring cheap supply and maintenance of official cycles by Government agency would be to (*a*) authorize one standard make of machine for Government use and to import them in numbers through the Director-General of Stores; (*b*) it would then be possible to import spare parts and components in bulk through the same source, and thereby eliminate the incidence of the local middleman's profits.

For years past this course has not been possible and every officer has been allowed to purchase any make of cycle that he chooses, and it is not possible to stock so many different makes of components nor to import direct the smaller quantities required of each sort.

Question 2 (*p*)—

No definite information is available on the point as the transactions of other departments are not known in this office. One recent instance has occurred, but the value of the work is not known. The officer concerned took umbrage at not receiving as prompt a reply as from the

private firm and placed the work with them. Concerning this incident, it may be remarked that the lengthy Government Christmas holidays had intervened which the private firms only avail in part; and that the firm had about six times the supervising staff that the Public Works Workshops has, though they have, it is believed, a smaller outturn and number of hands employed.

Question 2 (*q*)—

The total amount of work on hand varies greatly, but not so much monthly on account of seasonal variations as annually for financial reasons, depending on whether there are funds available for placing requisitions for large new works or not. The smaller repair jobs stream in fairly constantly. Diagram 3 shows the annual and monthly variations in output. During busy periods the staff have as much as, or more than, they can manage to do. Even in "slack" times the permanent staff have quite enough to do, even though the number of daily paid hands, etc., may be greatly reduced.

It has to be remembered that comparatively small repair jobs often require far more supervision and attention, in proportion to cost of labour and materials, than, say, 100 times their value in the case of large new works where a very considerable part of the total cost is for materials.

Question 2 (*r*) (1)—

Increased output beyond or even up to the past maximum can hardly be attempted without increasing the existing establishment as to superior staff and also the drawing and estimating staff, the present reduced strength of which is not able to keep pace with the work to be done.

Question 2 (*r*) (2)—

Additional superior staff is essentially required—vide reply to question 1. There should be one superior assistant for the Workshops and one for the Public Works Stores. The present state of affairs under which I, as General Superintendent, am expected to carry out, single-handed, the duties in workshops and stores, and up-country, for which five gazetted officers were provided in 1920–21, is an absolutely impossible situation, and cannot continue.

Question 2 (*r*) (3)—

The employment of extra labour when required is in the hands of the General Superintendent and is arranged for according as to the amount of work in progress.

Question 2 (*r*) (4)—

The installation of a small cupola of about 5 to 10 cwt. capacity, say, of the Green's "Emergency" type, would decrease foundry costs in slack times and also for sudden emergent repair castings by obviating the necessity of having to adopt the crucible method of melting for small but urgently required jobs.

Question 2 (*r*) (5)—

Electrifying the motive power of the Workshops is most necessary and urgently required. The whole matter was carefully considered some years ago and approved, an estimate amounting to Rs. 32,675 was sanctioned for execution in G.O. No. 1463-W., dated 9th August 1915, and a very favourable agreement for the supply of current was entered into with the Madras Electric Supply Company—vide G.O. No. 1608 W., dated 15th December 1917, and G.O. Mis. No. 243 W., dated 29th February 1924. Indents were sent to the Director-General of Stores, London, in 1915 for the supply of the necessary plant equipment. But under war time conditions the supply was not possible and the matter was kept in abeyance. After the war, prices were considered to be too high. But now that prices have come down almost to pre-war rates, the matter has been taken up again; the Electrical Engineer to Government is preparing a revised estimate, and Government have been requested to allot funds for the execution of the work. This has not yet been done. In view of the great advantage of having an ample supply of power available when required during busy periods, and the fact that the anticipated saving in cost of power will pay for the initial cost of the installation in, say, six or seven years, it is obviously a paying proposition to install electric power.

Question 2 (*r*) (6)—

The scrapping and replacement by electric drive of the three largest and oldest of the oil engines is most necessary as they are most expensive in fuel and not capable of giving the power required. They were admitted to be worn out ten years ago, and, owing to the electric drive not being installed as anticipated, portable and semi-portable steam engines and boilers were put in to take the ordinary daily load, and these oil engines are only used when the load on the machine shop is too great for the steam plant.

Wholesale scrapping of any large part of the existing machine tools, merely because they are old and not of the latest pattern though still in quite good and serviceable condition, is a mistake under Indian conditions, though often necessary in Europe and America where skilled labour is paid ten or even twenty times as much per day as the local labour in Madras. With such low labour rates, the interest on the capital cost of the new plant is far more than any possible saving in labour costs by the increased output of the newer machines.

But the replacement of some of the older and really badly worn of the machines is advisable and necessary, in particular of certain of the drilling machines; also the addition of certain additional new tools, is most advisable. The provision of two belt-driven pneumatic forging hammers would greatly increase the speed, efficiency and economy of the work in the smithy. A small one is needed similar to the one in the Industrial Workshop and also a larger one, similar to the one of about 6 cwt. size now in the Engineering College smithy. The latter was obtained in England at a cheap rate from Munitions Board surplus stock soon after the war. It is really too large for demonstrating to students in a college. It has stood unused for years for want of power to drive it, and even now when a separate electric motor has been provided, it can only be used very occasionally, for a demonstration, as the cost of power, fuel, and especially the steel to be forged, for a full power demonstration is very considerable.

As practically all the passed students from the Engineering College come to the Public Works Workshops for a six months' practical course, it would surely be in the interests of Government and of economy for this hammer to be transferred to the Public Works Workshops. The students could then see it constantly working under practical conditions on useful work; the Engineering College would be saved a good deal of expense, and the Public Works Workshops would be greatly assisted in the execution of their smith work.

Question 2 (*r*) (6)—

There is another most important and greatly needed improvement required for increasing the efficiency of the Public Works Workshops, and that is to alter the lay-out of certain of the plant, and existing worksheds.

A new, large, light and airy workshop building provided with overhead travelling cranes, is necessary in place of the numerous small, low-roofed, and greatly scattered sheds in which engine repairs, fitting, and plate work is now done, and to provide covered space for the erecting and other work now done in the open, where it is delayed by rain in the wet weather and by the sun in the hot weather.

With a large central shop properly arranged in bays, the sequence and routing of the work can be arranged to avoid unnecessary cost in transport back and forward to different shops. Also the foremen can better supervise the work in progress in a large shop where the whole of bay can be seen at once. With numbers of small shops placed far apart this is not possible, and undoubtedly there must be a good deal of idling.

Proposals with an estimate amounting to about 3½ lakhs were submitted in 1918 but the then Chief Engineer ordered the matter to be brought up again after the war. On account of high prices of materials, the matter was allowed to lie over till 1921, and it was then decided that fresh proposals should be submitted after my return from long leave in 1923. But after my return, I have been single-handed and over-worked since April 1923, and it has been absolutely impossible to devote any time to improvement schemes such as this, as the essential daily routine work takes up more than a normal day's working hours. There has moreover been the underlying feeling that under recent retrenchment conditions no funds would be provided no matter how advisable the improvement might be.

But in view of the fact that the Madras and Southern Mahratta Railway, South Indian Railway and Ceylon Railways, are all spending millions of pounds sterling in improving their workshop facilities to cope with their present needs, it is surely most advisable for the Government of Madras to realize the immense benefits they obtain from their Workshops, and to provide the funds for necessary improvements.

Question 2 (*s*)—

Roughly about half the work is done by departmental daily paid labour, and the rest by piece-work, or so-called 'contract.' The exact proportions vary from time to time according to the nature of the work on hand. Most private firms doing miscellaneous work follow the same system. It is only firms manufacturing nothing but special lines, and which do not undertake miscellaneous works, that can put everything on to piece-work rates.

Question 2 (*t*)—

There is a standard schedule of labour rates for certain sorts of work which are frequently carried out, but it is impossible to have any reasonable schedule of rates for miscellaneous odd jobs and repairs.

Question 2 (*u*)—

The provision of two extra foremen in 1917 enabled closer supervision to be maintained both on work in the shops and on outside jobs, and enabled certain jobs formerly done (and only too frequently badly done) on agreed contract rates, to be more efficiently done by departmental labour under their direct supervision. No figures are available or possible as to how many of these jobs would or would not have been done departmentally under former conditions.

As a result of the abolition of the Assistant Superintendent's post, his routine duties have been thrown on to the General Superintendent and General Foreman, to the detriment of their own proper work. The net result is that there is less supervision available for checking the

work in progress and preventing waste of time, and inferior workmanship. This act of retrenchment probably really costs Government far more than it saves, though there are no statistics available to prove it.

Question 2 (*v*)—

Yes, most decidedly so. Schemes for the mechanical portion of various works all over the Presidency have been greatly delayed, the work in the shops and stores, and up-country inspections cannot obtain as close attention as they should get. It is only by working undue hours, and every day in the week that so far there does not appear to have been any great catastrophe, but there is no knowing that some terrible mistake or omission may not be discovered at any time resulting in serious loss to Government. The present state of affairs is unreasonable and impossible and must result in trouble, sooner or later, unless rectified forthwith.

STATEMENT A.

Staff of the Public Works Workshops (on 1st January 1925).

Designation.	Pay of grade.	Present pay.	Name.	Qualifications.
*Suprior Mechanical Engineer.**	Rs.	Rs.		
General Superintendent, Public Works Workshops and Stores.	Pay 600—100/3—1,000; Remunerative Personal Allowance Rupees 300—50—600.	1,000 plus 500	W. P. Roberts.	M. I. Mech. E., M.I.E. (Ind.) Thirteen years' technical training, and apprenticeship at Gwynne's, London, and charge of works in England; 3½ years with a private firm in Bengal and then 16 years with the Public Works Department, Madras.
Foremen.				
1. General Foreman ..	300—10—400	320 plus 48	L. S. Floate ..	Four and a half years' apprenticeship with Madras Arsenal, and R. & I.V. State Railway Workshops, then 5 years' experience with private firms and Madras Port Trust, then 15 years with the Public Works Workshops.
2. Machine Shop Foreman.	150—10—250	220	W. E. Sydenham.	Three years at sea, 5 years' apprenticeship at Madras Railway Workshops; 17 years subsequent experience in railway and private firms workshops, 10 years with the Public Works Workshops as Foreman.
3. Outdoor Foreman ..	150—10—250	190	C. Floate ..	Three years' apprenticeship in Public Works Workshops, Madras; 22 years' experience with Public Works and Railway, private firms workshops; 9 years as Foreman on Public Works Department Project Works and 3 years as Outdoor Foreman, Public Works Workshops.
4. Instrument Department Foreman.	150—10—250	170	A. Arnett ..	Five years' apprenticeship in Public Works Workshops, 35 years' practical experience in instrument repairing and 4 years as Foreman.
5. Yard Foreman ..	150—10—250	170	W. Stopford ..	Three years' apprenticeship, St. Joseph's Industrial School, Coimbatore; 3½ years Motor Road-roller Driver, Cochin State and West Coast; 2 years Engineer, Fisheries Department; Motor Schooner; 1 year Overseas as Convoy Mechanic and with Military Works. In all 11 years previous practical experience and 3 years as Foreman in the Public Works Workshops.
Maistris.				
1. Smith Maistri	40—4—60 plus Rs. 5	83 (65 + 18)	Rathnachary ..	Started as "Boy" in Smith Shop, Old Public Works Department Workshops at Chepauk and finally rose to Smith Maistri. Has over 50 years' service and is now about to retire.
2. Foundry Maistri ..	40—4—60	78 (60 + 18)	Murugesa Naicker.	Started as apprentice moulder boy and for 6 years Railway Workshops, Perambur; then 3½ years with various Foundries in Madras and at Kolar Gold Fields; 23 years with Public Works Workshops.
3. Carpenter Maistri ..	65	65	Balachary ..	Twenty-five years' experience in Public Works Workshops starting as "Apprentice Boy" and finally rising to Maistri.

NOTE.—All assistants have been abolished under the Retrenchment Scheme.

STATEMENT B.

List of engines and principal machine tools and other plant in the Public Works Workshops, Madras.

	Number.
Prime movers—	
Oil engines of sizes 6 to 36 b.h.p.	6
Steam engines and boilers 10 to 30 b.h.p.	3
Machine Tools, etc.—	
Lathes of sizes, from 4″ to 8′ 0″ diameter of face plate	37
Drilling machines 12″ to 6′ 0″ reach	21
Shaping machines	2
Planing machines of sizes up to 4′ × 4′ × 10′ 0″	3
Slotting machines of sizes	3
Milling machines	3
Circular Cold Sawing machines (for metal)	2
Emery grinders, various	4
Grinding stones of sizes	3
Power hack saw machines of sizes	6
Circular saw machines (for wood)	2
Band saw machines (for wood)	1
Bolt and pipe screwing and nut tapping machines	5
Bolt and nut forging machines, various	3
Plate shearing, bar cropping and punching machines of sizes and sorts	5
Beam cropping machine	1
Power driven bar bending and straightening machine	1
Do. do. hydraulic	2
Plate edge planing machine 24 feet stroke	1
Plate bending rolls of sizes up to 10 feet width	3
Plate flattening rolls up to 6 feet width	1
Power rivetting machine 5 feet gap with 2 ton travelling crane	1
Pneumatic portable 3 feet gap rivetter with travelling gantry	1
Steam driven air compressor with boiler for pneumatic plant	1
Sand blast apparatus	1
(Pneumatic drills, rivetting and caulking hammers are drawn from and returned to Public Works Stores as required.)	
Blacksmith's forges	47
Steam Hammer 7½ cwts. with crane	1
Swaging machine	1
Fan blowers for forges	2
Roots blowers for forges and foundry	4
Foundry cupolas for melting iron 1 to 5 tons capacity	4
Crucible furnaces for brass foundry, up to 27 cwts. total capacity	5
Sand and loam grinding machine	1
Sand sifter	1
Rumbling drum	1
Hoisting and Transport Equipment—	
Foundry overhead travelling crane, 5 tons	1
Travelling jib cranes of sizes for use in yard from 1 to 10 tons capacity	5
Overhead Runway cranes in Machine Shop	5
(Tramway lines in yard and shops with special trollies for transporting materials about ½ mile.)	
Steam wagons with trailers	2

Profit and loss account of Public Works Workshops, Madras, during the year 1921–22.

Item number and particulars.	1921–22.	1920–21.
Receipts.		
	Rs.	Rs.
1. (*a*) Provincial revenue receipts—		
(1) Ten and one-third per cent on Rs. 4,57,943 being the value of work done for the Public Works Department, other departments, etc., for interest and depreciation.	47,299	36,610
(2) Eight per cent on Rupees 4,57,943 being the value of work done for the Public Works Department, other departments, etc., for tools and plant.	36,636	18,019
(3) General charges	23,716	7,802
(*b*) Rents of buildings	160	240
(*c*) Other miscellaneous receipts ..	5,054	2,476
Total, A ..	1,12,865	65,147
2. Establishment—		
Thirteen per cent on Rs. 4,57,943 being the value of work done for the Public Works Departments, other departments, etc.	59,533	49,551
Total, B ..	59,533	49,551
Total, A and B ..	1,72,398	1,14,698
3. To loss	..	4,141
Grand total ..	1,72,398	1,18,839

Item number and particulars.	1921–22.	1920–21.
Charges.		
	Rs.	Rs.
4. Working expenses—		
(*a*) Repairs to buildings	3,423	5,863
(*b*) Establishment	38,987	52,108
(*c*) Bonus to subscribers of other Miscellaneous Provident Fund.	1,881	2,106
(*d*) Repairs to tools and plant ..	30,849	26,733
(*e*) Cost of stationery supplied ..	453	..
(*f*) Cost of printing	572	..
Total, C ..	76,165	86,810
Indirect charges.		
5. By depreciation—		
(*a*) Block at 3 per cent on Rs. 81,403 as per Statement C.	2,442	2,491
(*b*) Machinery at 4 per cent on Rs. 2,25,809 as per Statement C.	9,032	9,071
(*c*) By leave and pension allowance at 14 per cent on Rs. 34,823	4,875	6,574
(*d*) By interest on capital at 4 per cent on the opening balance of Rs. 3,45,118 as per Statement D.	13,805	13,981
(*e*) *Add* 4 per cent on half the increased capital, i.e., — Rs. $\frac{23,147}{2}$ = or — Rs. 11,573.	— 463	— 88
Total, D ..	29,691	32,029
Total, C and D ..	1,05,856	1,18,839
By profit ..	66,542	..
Grand total ..	1,72,398	1,18,839

* One-third of the salaries of the General Superintendent and the Assistant Superintendent and the whole of the travelling allowance due to their inspections has been deducted from the total cost of their salaries as per G.O. No. 1166 W., dated 13th August 1921.

Profit and loss account of Public Works Workshops, Madras, during the year 1922–23.

Item number and particulars.	1922–23.	1921–22.
Receipts.		
	Rs.	Rs.
1. (*a*) Provincial revenue receipts—		
(i) Ten per cent on Rs. 2,32,740 being the value of work done for the Public Works Department and other departments, etc, for interest and depreciation.	23,274	47,299
(ii) Six per cent on Rs. 2,32,740 being the value of work done for Public Works Department, other departments, etc., for tools and plant.	13,964	36,636
(iii) General charges	— 9,407	23,716
(*b*) Rent of buildings	240	160
(*c*) Other miscellaneous receipts ..	— 4,222	5,054
Total, A ..	23,849	1,12,865
2. Establishment—		
Twelve per cent on Rs. 2,32,740 being the value of work done for the Public Works Department, other departments, etc.	27,929	59,533
Total, B ..	27,929	59,533
Total, A and B ..	51,778	1,72,398
3. To loss	34,156	..
Grand total ..	85,934	1,72,398

Item number and particulars.	1922–23.	1921–22.
Charges.		
	Rs.	Rs.
4. Working expenses—		
(*a*) Repairs to buildings	† 4,076	3,423
(*b*) Establishment	30,431	38,987
(*c*) Bonus to subscribers of other Miscellaneous Provident Fund.	1,674	1,881
(*d*) Repairs to tools and plant ..	20,767	30,849
(*e*) Cost of stationery supplied ..	624	453
(*f*) Cost of printing	411	572
Total, C ..	57,983	76,165
Indirect charges.		
5. By depreciation—		
(*a*) Block at 3 per cent on Rs. 83,419 as per Statement C.	2,503	2,442
(*b*) Machinery at 4 per cent on Rupees 2,21,070 as per statement C.	8,843	9,032
(*c*) By leave and pension allowance at 14 per cent on Rs. 27,612.	3,866	4,875
(*d*) By interest on capital at 4 per cent on the opening balance of Rs. 3,21,971 as per statement D.	12,879	13,805
(*e*) *Add* 4 per cent on half the increase to capital,— Rs. $\frac{6,944}{2}$ = — Rs. 3,497.	— 140	— 463
Total, D ..	27,951	29,691
Total, C and D ..	85,934	1,05,856
By profit ..	..	66,542
Grand total ..	85,934	1,72,398

† Includes the full outlay on special repairs to the roof of No. 3 fitters shop estimate Rs. 1,020; the increase of Rs. 200 to the capital cost will be taken in the accounts of the year in which the work is completed.

Profit and loss account of Public Works Workshops, Madras, during the year 1923-24.

Item number and particulars.	1923-24.	1922-23.
Receipts.	Rs.	Rs.
1. (a) Provincial revenue receipts—		
(i) Ten per cent on Rs. 2,52,614 being the value of work done for the Public Works Department, other departments, etc., for interest and depreciation.	25,299	23,274
(ii) Six per cent on Rs. 2,52,614 being the value of work done for the Public Works Department, other departments, etc., for tools and plant.	15,157	13,964
(iii) General charges	— 13,803	— 9,407
(b) Rents of buildings	245	240
(c) Other miscellaneous receipts ..	— 3,177	— 4,222
Total, A ..	23,721	23,849
2. Establishment—		
Twelve per cent on Rs. 2,52,614 being the value of work done for the Public Works Department, other departments, etc.	30,314	27,929
Total, B ..	30,314	27,929
Total, A and B ..	54,035	51,778
3. To loss	38,626	34,156
Grand total ..	92,661	85,934

Item number and particulars.	1923-24.	1922-23.
Charges.	Rs.	Rs.
4. Working expenses—		
(a) Repairs to buildings	3,793	4,076
(b) Establishment	38,488	30,431
(c) Bonus to subscribers of other Miscellaneous Provident Fund.	2,509	1,674
(d) Repairs to tools and plant ..	18,371	20,767
(e) Cost of stationery supplied ..	757	624
(f) Cost of printing	122	411
Total, C ..	64,040	57,983
Indirect charges.		
5. By depreciation—		
(a) Block at 3 per cent on Rupees 82,594 as per Statement C.	2,478	2,503
(b) Machinery at 4 per cent on Rs. 2,17,136 as per Statement C.	8,685	8,843
(c) By leave and pension allowance at 14 per cent on Rs. 35,857.	4,992	3,866
(d) By interest on the capital at 4 per cent on the opening balance of Rs. 3,14,977 as per Statement D.	12,599	12,879
(e) *Add* 4 per cent on half the increase to capital, Rs. $\frac{-6,671}{2}$ = — Rs. 3,335.	— 133	— 140
Total, D ..	28,621	27,951
Total, C and D ..	92,661	85,934
Grand total ..	92,661	85,934

QUESTIONNAIRE.

II.—INDUSTRIAL WORKSHOPS, MADRAS.

1. What is the constitution and organization of the shop at present? Give details of staff—Engineers, Foremen, maistris, etc.—with pay and qualifications.

2. Is the shop equipped only to undertake the small works now required by that department? Give a list of the principal machines, prime-movers, etc., in the shop.

3. What are the works undertaken in the shop

(a) at the instance of the department itself

(i) for the benefit of the department,

(ii) for the benefit of the ryots and private factory owners;

(b) at the instance of the ryots or private owners themselves which are treated as rush jobs;

(c) for experimental purposes; and

(d) for training staff?

4. Are the accounts kept on a commercial basis? Is the shop self-supporting? Profit and loss statement for the past three years may be furnished.

5. What percentage has to be added to the prime cost (i.e.) actual cost of labour and materials) of work undertaken to cover overhead charges and thus arrive at the total cost of such work?

6. How is the pay of the staff distributed for determining charges for supervision on works executed at the shops?

7. In the case of rush jobs for private owners, is any special additional charge levied?

8. Supposing the Public Works Department Shops is made a Central Government Mechanical Engineering Shops—common to all departments of Government—and no preference is given to the exigencies of any particular department, would there be a necessity to maintain a separate shop for the Industrial Department.

9. Could the Industrial Shop be added to the Engineering College Workshops? If the answer is in the negative, what are the special difficulties in the way?

10. As at present equipped can the shops undertake any more work for other departments of Government? If so, what is the nature of work that the shops could take up?

11. Is the cost of manufacturing and repairing boring and other departmental plant and machinery in the Industrial Engineer's Workshops higher or lower than that at which similar work could be executed by private firms? Give specific instances of the comparative cost of executing items of work in the Industrial Workshops and private Engineering Works.

12. Are the plant and staff fully employed throughout the year; or are there slack periods due to seasonal or other causes?

ANSWERS TO QUESTIONNAIRE, ETC., BY N. M. ADYANTHAYYA, B.S.A., INDUSTRIAL ENGINEER.

II.—INDUSTIAL WORKSHOPS, MADRAS.

(1) The present staff consists of—

	Rs.
(*a*) Industrial Engineer	750
(*b*) Assistant Industrial Engineer	300 plus 50
(*c*) Supervisor	110 plus 40
(*d*) Store-keeper	69

(*a*) The permanent Industrial Engineer is an M.Sc. of Durham University and Associate Member of the Institution of Mechanical Engineers.

(*b*) Lower subordinate of the College of Engineering, Madras. Has had special workshop training in the departmental workshop under Sir A. Chatterton and Mr. Tressler. Has put in 17 years' service in the department; was specially deputed as works manager of the Madras Pencil Factory on two occasions.

(*c*) L. M. E. Honours of Victoria Jubilee Technical Institute, Bombay. Has been in charge of the workshop for over four years.

(*d*) Secondary School-Leaving Certificate.

(2) Yes. The machines are just suited to the peculiar needs of the department.

(*a*) Twenty-two H.P. Ruston Hornsby Suctiongas engine and plant.
(*b*) Five lathes of various sizes.
(*c*) Two power hammers.
(*d*) Two small drilling machines.
(*e*) One radial drilling machine.
(*f*) One shaping machine.
(*g*) One slotting machine.
(*h*) One hack saw machine.
(*i*) One pipe screw cutting machine.

(3) (*a*) (i) Manufacture of boring tools. Repairs and renewals of the above. Repairs and renewals of parts of the following apparatus owned by the department—

(1) Liquid fuel pumping sets.
(2) High speed pumping sets.
(3) Key stone drills.
(4) Calyx drills.

The parts include renewal of liners, pistons and piston rings, bearings, skew gears, connecting rods, cams, inlet and exhaust valves, springs, vapourisers, water jackets, impellers for all centrifugal pumps, pump doors, shafts, glands, and bushes. Foot valve strainer, calyx rods, barrels, cutters, shoes couplings, core barrels, water hoist swivels, lifting shackle, rope socket, jars, stem rods, special fishing tools, and other miscellaneous articles too numerous to mention.

Work is also executed for the following departmental officers:—

(1) Leather expert.
(2) Soap expert.
(3) Textile expert.
(4) Ink expert.
(5) Jam expert.

It is impossible to bring within the scope of this note the various jobs entrusted by these experts, some of these jobs requiring various experiments before an appliance can be actually perfected and manufactured. The experts visit the factory during the various stages of manufacture and suggest additions and alterations as the work progresses.

It will be difficult to enumerate details of them. To quote instances chrome liquor plant was designed and put up to leather expert and is now working satisfactorily.

A hot air blower was designed and fitted up for drying soaps during winter at the instance of the soap expert.

Bobbin and cone winding machine have successfully been manufactured for the Textile expert and they are now in actual operation.

(*a*) (ii) We undertake repairs and renewals to each and every part of an oil-engine—gas-engine, centrifugal pumps and also to those relating to industrial plants and machinery such as hullers, decorticators, disintegrators, oil-mills, to meet urgent needs of the ryots and the factory owners.

(*b*) From practical experience we have seen that the various details mentioned above are considered as rush jobs. In the majority of cases the ryots will not be content by leaving the jobs with us, but will wait until they are actually manufactured and supplied.

(*c*) Fishing tools of all kinds manufactured in the workshop can be taken as those coming under experimental work. In several cases tools will be designed and made to suit each particular case as the boring tool is dropped in the borehole.

Such jobs are considered as experimental ones as also those that are undertaken on behalf of the experts. The workshop has done the following experimental work on behalf of the inventors who invited opinion on the merits or otherwise of their appliances for the use of the ryots :—

(1) Ramachandra see-saw lift.
(2) Wind mill.
(3) Cost of crushing phosphatic nodules, etc., with the ball mill.
(4) Marvello pump of Messrs. Heatly and Gresham.
(5) Testing of other pumping appliances from the makers before such appliances are recommended to the ryots. We have now undertaken at the instance of Messrs. Brunsweiler & Co. a deep well vertical spindle centrifugal pump to pump water from wells, depth ranging from 60—100 feet. If this pump proves successful, it will be a great boon to inumerable ryots in Coimbatore and Ceded districts where the average depth of the well is 50 feet and above.

(*d*) For training the staff no special work is undertaken as the various jobs usually done will give them ample scope to learn the work peculiar to the department. The manufacture of boring tools and the repairs and renewals of the various parts of the power drills and testing engines (liquid fuel and high speed) give sufficient training to them as these jobs are generally about 70 per cent of the whole.

(4) (*a*) Yes, the accounts are kept on commercial basis.
(*b*) Yes, it is self-supporting.
(*c*) Profit and loss statement prepared by Messrs. Fraser and Ross for the first year after the introduction of the commercial account is put up; no accounts were kept before then on commercial basis.

(5) Messrs. Fraser and Ross, Chartered Accountants, who audited the workshop accounts and who drew up a profit and loss statement, declared that about 70 per cent of the work done is for pumping and boring which is charged at cost inclusive of overhead charges. We are now charging 40 per cent on actual cost of labour and material.

(6) (*a*) One-fifth of Industrial Engineer's salary.
(*b*) Half of Assistant Industrial Engineer's salary.
(*c*) Full pay of workshop supervisor.
(*d*) Full pay of workshop store-keeper.

(7) Yes. Consistent with the rate at which such jobs are undertaken by other private firms. In some cases as much as 100 to 150 per cent is added to keep the cost of the article on a par with the rates of private firms.

(8) This department must have an independent workshop of its own. Even if the Public Works Department is made a central workshop, it will have to set apart a separate section exclusively for the work of this department. For the work of this department usually is of an urgent nature and often comes through the departmental officers in whose care the engines of the ryots are entrusted by a compounding system. I am submitting a note on this separately.

(9) The following explanation will answer the questions raised :—

(*a*) The department owns about 50 boring sets (each set contains about 50 tools) and some more are being added.
(*b*) Twelve oil-engines pumping sets.
(*c*) Six High speed pumping sets,
(*d*) Three keystone drilling sets for rock boring,
(*e*) Three calyx drilling sets for rock-boring.

Not to speak of some more power boring sets and testing engines that will be ordered by the Industrial Engineer who is now on deputation in America.

All these machines detailed above are hired out to ryots in the districts. When they are so engaged many parts are now and then sent out to workshop either for repairs or renewals. If these are not attended to promptly, the ryot will lose the standing crops for which these are lent and the small industrialist will lose his best part of the working season not to speak of the loss to the department for the periods such machinery is kept idle. In all such cases prompt attention will be paid in the workshops as the jobs come in. This is possible only when the Industries department has a workshop of its own to bestow undivided attention to such important jobs.

(10) The workshops is fully engaged now and cannot undertake any large works for other departments without detriment to the work of the Pumping and Boring branch. Small work, such as the making of engine parts, pump repairs, etc., can be undertaken to a limited extent.

(11) The cost of manufacturing tools is much lower—about 50 per cent in many cases than that at which similar work could be executed by private firms. The enclosed statement showing the various description of boring tools made at the workshops and those quoted for by the leading engineering firms will bear out the statement above.

(12) The plant and staff are fully engaged. There has been no cessation of work at any time and no slack season.

INDUSTRIAL ENGINEERING WORKSHOPS.

Profit and loss statement for the year ending 31st March 1924.

Receipts.	Rs.	A.	P.	Rs.	A.	P.	*Expenditure.*	Rs.	A.	P.	Rs.	A.	P.
Opening stock				45,626	1	3	By sales—						
Purchase				32,906	10	1	Pumping and Boring	42,881	5	10			
Wages				10,106	1	0	Inter departmental	5,913	14	7			
Salaries				5,691	0	0	Other departments	805	0	7			
Water charges				301	14	0	Private parties	11,854	0	4			
Telephone rent				125	0	0					61,455	5	4
Audit fee				200	0	0	Furniture and fixtures				4,488	5	2
Depreciation—							Work in progress				3,691	5	11
On buildings	1,639	6	0				Stock on 31st March 1924				39,625	0	10
On machinery	1,539	1	3										
				3,178	7	3							
Interest				4,928	7	0							
Net profit				6,196	8	8							
Total				1,09,260	1	3	Total				1,09,260	1	3

Comparative cost of boring tools.

Number and names of boring tools.	Industrial Engineer's Workshops.			Richardson Cruddas Bombay.			The Reliance Engineering Works.			Burn and Co., Howrah.		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
1. Model of a winch, 1	162	0	0	760	0	0	340	0	0	185	0	0
2. Iron Derrick Post set, 1	200	0	0	650	0	0	380	0	0	550	0	0
3. Bore hole Test Pump, 1	160	0	0	..			200	0	0	..		
4. Spiral worm, 1	10	8	0	75	0	0	65	0	0	30	0	0
5. Spring hook, 1	7	0	0	65	0	0	75	0	0	40	0	0
6. Hand dog, 1	3	0	0	25	0	0	20	8	0	12	0	0
7. Pipe clamp, 1	5	11	0	27	0	0	25	8	0	35	0	0
8. Heavy chisel, 1	30	0	0	100	0	0	80	0	0	..		
9. Calyx cutter	29	0	0	125	0	0	70	0	0	75	0	0
10. Tee chisel and mild steel coupled, 1	30	0	0	130	0	0	62	8	0	40	0	0
Tee chisel steel coupled, 1	43	8	0									
11. Spring dart, 1	15	0	0	150	0	0	66	0	0	65	0	0
12. Water shell, 1	18	6	0	95	0	0	50	0	0	50	0	0
13. Clay Auger, 1	12	8	0	96	0	0	68	0	0	45	0	0
14. Ten feet boring rod, 1	18	0	0	60	0	0	45	0	0	27	0	0
15. Lifting dog, 1	3	10	0	40	0	0	42	0	0	27	0	0
16. Horn socket, 1	9	0	0	125	0	0	65	0	0	15	0	0
17. Rhymer, 1	20	0	0	90	0	0	64	8	0	36	0	0
18. 2½" sand shell, 1	16	8	0	70	0	0	35	0	0	60	0	0
19. Steam coupling, 1	6	0	0	60	0	0	35	0	0	9	0	0
20. Swivel rod, 1	10	0	0	85	0	0	50	0	0	35	0	0
21. Mannesman pipe per foot, 1	5	0	0	40	0	0	45	0	0	..		
22. Bell box, 1	10	0	0	110	0	0	80	0	0	80	0	0
23. Rod tiller, 1	5	0	0	33	0	0	52	8	0	14	0	0
24. Flat chisel complete steel, 1	49	5	9	85	0	0	36	0	0	32	0	0
Do, mild steel, 1	30	0	0	..			65	0	0	30	0	0
25. Worm auger, 1	16	0	0	65	0	0	62	0	0	27	0	0

INDUSTRIAL WORKSHOPS—INDUSTRIAL ENGINEER'S NOTE ON THE WORKING OF —

Letter from M.R.Ry. N. M. ADYANTHAYYA Avargal, B.Sc. (EDIN.), Industrial Engineer, Madras, No. 323-B/24, dated 10th December 1924.

In continuation of my letter, dated 28th November 1924, I have the honour to submit herewith for the consideration of the Committee my views on the working of the industrial workshops.

The industrial workshops are primarily intended to answer the special needs of the Industries Department which has under its supervision or control 340 compounded installations, 50 hand boring sets, 6 power drills and 18 departmental pumping sets. The work executed at the workshops consists mainly of making, repairing and testing engine and pump parts, boring tools and special appliances for the Engineering Branch as well as for the various departmental institutions—such as the Leather Trades Institute, Kerala Soap Institute, Madras Industrial Institute, etc., the officers in charge of which have often to visit the shops and make their suggestions at various stages of manufacture. The Committee have raised the question as to whether it would be better to centralise work in a common workshop. The question of centralisation should, I think, be considered with due regard to the following points, viz., (1) expedition in execution, (2) convenience and (3) economy.

Regarding expedition, the departmental workshop by reason of its size, equipment and staff is able to concentrate its entire attention on rush jobs which brook no delay and which cannot be expeditiously dealt with by a cumbersome organization of a large central workshop.

A great proportion of the work handled by us calls for rapidity of execution. It may as well be explained here why these jobs are of an urgent nature. As has already been stated above, the department has, under the compounding system, undertaken to inspect and overhaul annually 340 engine installations owned by ryots, a great many of which have been erected by

the departmental staff. These engines have sometimes to be repaired and parts manufactured in the middle of the crop season when the engine is most urgently required. These jobs cannot wait their turn as they would necessarily have to do, in a large workshop which handles a greater variety of jobs and any delay in paper correspondence and other formalities which would necessarily have to be gone through, if the work was handled by another department, would result in a serious loss to the ryots. It is a common spectacle to see a ryot waiting at the shop till his parts are completed. For he knows that quickness is vital to his crops. Again, when a drilling set or a pumping engine owned by the department breaks down, the work has to be attended to at once as otherwise the department will lose hire during the time the machine remains idle. In all this class of work expedition is the main consideration and this could not be assured in the same degree in a large central workshop, especially when the work has to come through various officers of one department who actually handle the parts, to be executed by those of another department.

Even if the work is transferred to any other central workshop, it would still be necessary to set apart a separate section exclusively for the work of the Industries Department. This would again in effect result in the maintaining of a separate workshop such as is owned at present by the department.

From the point of view of convenience, the workshops are a necessity to the Industries Department. Improvements and adaptations are being constantly effected in the various appliances such as keystone drills, calyx drills, H.B. sets, pumping sets and other departmental machinery handled and worked by the departmental experts. These adaptations and improvements frequently necessitate a series of experiments and tests which it would be impossible to conduct if the department had not the convenience of a workshop. Then again, several inquiries regarding the working of different types of engines, pumps, windmills, etc., reach the department from time to time and it is the duty of the department to supply reliable information to the public. In order to be able to do so, tests have to be conducted on the new types and definite conclusions arrived at. For example, a firm recently sent a new type of windmill of their own design and requested the department to test it under the conditions obtaining in the field. Messrs. Brunschweiler & Co. have just sent a new borehole test pump of an entirely new design, such as has not been seen in India, for test and demonstration. These tests and their results which are of far-reaching importance to the public at large could not be conducted without the convenience of a workshop attached to the department. Amalgamation of the workshop with that of any other department would deprive the Industries Department of much of its utility and scope and would stifle advancement of small unit irrigation by pumping.

Moreover, the workshops at present form a training ground for supervisors, mechanics and boring maistris who are sent out to the districts after a preliminary training at the workshops. While they are thus receiving their preliminary training, they act as a leave reserve for the filling of leave vacancies as they occur in the districts.

As regards the third point, viz., economy, nothing would be gained by amalgamation. Our workshops are comparatively small in size and equipment and are run more efficiently under closer supervision and produce a greater outturn per man per day than would be possible in a large workshop in which supervision must inherently be less effective. There will, besides, be greater wastage of material and labour in a large workshop where articles must perforce pass through various hands and will travel a longer distance before they are sent out. These are precisely the points which have contributed to the financial success of the workshops. The shops have earned during the year 1923-24 a net profit of Rs. 6,196-8-8 exclusive of interest and depreciation as per audit report of Messrs. Fraser and Ross.

The existence of the workshops also brings in an annual income to the department in the way of compounding fees from ryots for repairing and overhauling their engines. This system offers the ryots great advantages in regard to the proper working of their plants and frees them of a considerable part of their worry during the working season. The continuance of the system is only possible if the workshops form a part of the department.

It will thus be seen that, in more ways than one, the workshop forms an integral part of the departmental machinery and its continuance is an absolute necessity for the proper functioning of the department.

It is significant to note that this fact has been recognized from time to time by various committees and commissions. The Indian Industrial Commission of 1918 in their report (vide paragraph 298 of the report) clearly recommended that the Industries Department should have a separate workshop and laboratory where tests could be conducted.

The question of amalgamation was also considered by the Retrenchment Committee of 1922 and a definite conclusion as to the necessity of the continuance of the workshop was arrived at.

In conclusion, I would state that the workshops have an important function to perform and form an inseparable section of the Department of Industries. Its amalgamation with the Public Works Department or Engineering College workshops would be a retrograde step and would result in destroying, in a considerable measure, the utility and usefulness of the department without leading to any economy. For, to sum up,—

(1) Our workshop is a small one and eminently suited to our special requirements.
(2) It is self-supporting and is earning a net profit.
(3) It functions as a training ground for subordinates.

(4) It is required to carry out experimental work and other work of the department.

(5) It indirectly brings in a revenue to the department in the way of compounding fees: and indirectly bestows incalculable benefits to the small ryots.

(6) No further economy in manufacture by amalgamation is possible as the cost of manufacture has been reduced to the minimum by a careful elimination of wastage in all directions. This is only made possible by reason of the small size of the workshops and the close supervision which is exercised over its operations.

QUESTIONNAIRE.

III.—PUBLIC WORKS DEPARTMENT SHOPS AT BEZWADA.

1. What is the constitution and organization of the shop at present? Give details of staff—Engineers, Foremen, maistris, etc.,—with pay and qualifications.

2. For what kind of works is the shop equipped? Give a list of the principal machines, prime-movers, etc., in the shops, the number of forges, number and capacity of cupolas, etc.

3. What are the principal works done in the shops during the past three years?

4. Are works undertaken for other departments or local bodies or for private bodies?

5. Are accounts kept on a commercial basis? How do the profit and loss account of the shop for the past three years stand?

6. Are the plant and staff fully employed throughout the year; or are there slack periods due to seasonal or other causes?

7. Can the shop undertake any more work as at present equipped? If so, what kinds of work can be taken up?

8. What works now done by the shop can be conveniently transferred to the Public Works Department Workshops at Madras without interfering with the exigencies of the local requirements and how can the activities of the shops be then reduced or modified?

9. Can the work now done in the workshop at Bezwada be undertaken at Dowlaishwaram and the Bezwada Workshop closed? If the answer is in the negative, what are the special difficulties in the way?

10. Is there any reason why the construction of new floating plant should not be carried out in Madras?

11. If the activities of the shops were limited to repair works, would it seriously impair the efficiency of the shops?

12. If only repair works were undertaken, could the plant and staff be considerably reduced?

13. What is the extent and nature of superior mechanical engineering supervision and direction given in respect of the works undertaken in the shops?

14. Are any designs prepared by the staff and is any charge levied therefor, if the works are not carried out by the shops?

15. What proportion of the pay of the superior staff is charged to the working of the shops and appears in the profit and loss account under Establishment charges?

16. *Bezwada.*—A statement of outturn and profit and loss in the shops for seven years from 1916–17 is appended. In the year 1920–21, there was a profit though small of Rs. 443; but both before and after this year there have been continuous deficits, the largest being in 1922–23. Why has there been such a continuous loss?

17. What percentage has to be added to the prime cost (i.e., actual cost of labour and materials) of work undertaken to cover overhead charges and thus arrive at the total cost of such work?

18. Is there any possibility of reducing prices or avoiding delay by installation of smaller machines, cupolas, etc.?

19. Is there any standard schedule of rates for work done by piecework or contract in the shops?

PUBLIC WORKS WORKSHOPS AT BEZWADA.

Answers to questionnaire by M.R.Ry. M. K. Ranganatham Avargal, B.A., B.E., A.M.I. M.E., Executive Engineer, Kistna Central Division.

1. Statement attached herewith [Enclosure No. (i)].

2. The workshops are equipped to carry out miscellaneous kinds of work—both manufacture and repairs. The principal machines are—

(1) Vertical saw machine (Thomas Robinson & Sons, Rockdale, Manchester, England). Size of logs cut 22" × 22" 1

(2) Circular saw machines (A. Ransome & Co., Chelsea, London), P.W.D., 1885 2

(3) Wood-planing machine (Ahmuty & Co., Calcutta) 1

(4) Turning and screw-cutting lathes (2 lathes, J. Dickinson & Co., Keighley, England, length of beds 20′ 10″, centres 10″; lathe, Shepherd Hill & Co., P.W.D., 1885, length of bed 17′ 0″, centres 14″) 3

(5) Wood-turning lathe (Buck and Hiekman, White Chappel Road, London) 1

(6) Punching and shearing (Smith Beacock and Tannett, Leeds, P.W.D., 1885)—Shears to 5/8″ thickness, punches 5/8″ thickness, angle cutting 3″ × 3″ × ½″ 3

(7) Drilling machines of varieties (1 Radial drilling—Alfred Herbert & Co., Calcutta, swing of arm 3′ 0″, drills to 2″ diameter; 1 Radial drilling—Greenwood and Batley, Leeds, P.W.D., 1885, swing of arm 3/0″, drills to 2″ diameter; 1 Anglo-American drill —T. E. Thompson & Co., Calcutta, swing on bed 1′ 0″ drills to 1½″ diameter; 1 Ball bearing—Alfred Herbert, Coventry Patent, drills to ¾″ diameter; and 2 drilling machines—William Roid & Co., Engineers, London, Newcastle-on-Tyne) 6

(8) Slotting machines (Shepherd Hill & Co., Leeds), P.W.D., 1885. Gap takes 3″ diameter cogs—William Muir & Co., Manchester, No. 26 2

(9) Planning machine (Greenwood and Bartley, Leeds), P.W.D., 1885. Travel of bed 6′ 0″. Takes machining 2′ 6″ × 2′ 0″ 1

(10) Plate bending (William Muir & Co., Manchester). Takes plates 6′ 0″ × ½″ thick 1

(11) Steam hammer (Selig Sonnenthal & Co., London). Capacity 2 tons, stroke 2′ 6″ 1

(12) Emery grinders (1—T. E. Thompson & Co., Limited, Calcutta; 1—Alfred Herbert, Limited, Coventry, England; 1—local made). Take wheels 1′ 0″ diameter 3

(13) Boring and mortising machine (J. Sagar & Co., Limited, Halifax, England). Boring ¾″ diameter × 6″ depth 1

(14) Saw-sharpening machine (Sam Worssam, Oakley Works, Chelsea, London) 1

(15) Silent roots blower (Tangyes, Limited, Birmingham), P.W.D., 1885. 1

(16) Power Hacksaw. Takes girders 15′ × 6″ 1

(17) Bolt and pipe screwing (Alfred Herbert & Co., Calcutta). Takes sizes 2″ diameter 1

Engines—

Portable engine 12 h.p., Marshall Sons & Co., Limited, London ... 1

Fordson Tractor Engine, 20 h.p. 1

Forges 10

Cupola of 2-ton capacity 1

There is also a pit foundry for small castings.

3.—Herewith separate statements (vide Enclosure No. 2).

4.—Yes. Miscellaneous works (both manufacture and repairs) are undertaken for departments, local and private bodies.

5.—Semi-commercial basis.

Profit and loss account for the last three years is herewith separately attached (Enclosure No. 3).

6.—Generally fully engaged except during the last three seasons when the general programme of works in the circle was cut down on account of financial stringency. As work increases, more labour is engaged.

7.—Certainly yes. It can easily undertake to do much more than what it has, at present, except during the months of April, May and part of June, when it is mostly engaged on irrigation works (both manufacture and repairs) in connexion with the Kistna Delta system. List of works that may be undertaken is the same as that in the enclosure to General Superintendent's letter W 44-S.E.M., dated 31st January 1924, printed on page 3 of G.O. No. 1003 W., dated 10th September 1924, except that iron castings weighing more than 2 cwt. *each* cannot be undertaken without some more equipment.

8 & 9.—Most of the work executed now in these shops is in connexion with the Kistna Delta system; and if efficiency with due regard to expenditure is the first consideration, as it should be, it is practically impossible to transfer the whole or part of the work now done here to Madras or Dowlaishwaram shops.

The impracticability of such a transfer may be seen from the following instances selected from the current indents:—

(i) *Job No.* 9783-*W.*—This is an urgent indent received from Kistna Western Division. Reminders for compliance of the indent were received even before the indent was received in shops.

(ii) *Job No.* 498-*W.*—This is another urgent indent, received on 27th August 1924 with urgent reminders in the form of special letters received on 3rd September 1924, explaining the heavy responsibility on the part of Government to see that the indent was immediately

complied with. This indent is for a big nut to be cast and threaded and a new screw rod to be made. The indent was complied with on 5th September 1924. It is impossible to think of such prompt response if the indent is placed on an outstation shop at Madras or Dowlaishwaram nor would it have been possible if the Bezwada shops had been merely a repair shop.

(iii) *Job No.* 6.—This is an indent, received about the middle of May 1924 to be complied with before 1st June 1924. The information furnished by the concerned division was incomplete; telephonic instructions were given, and it was possible to get a reply immediately and comply with the indent, in time, before the reopening of the canals.

(iv) *Job No.* 126-*W.*—There were certain mistakes in the indent received and correct dimensions had to be got without delay from the concerned Executive Engineer; it was possible to comply with the indent by the time the canals were reopened.

(v) *Job No.* 356-*W.*—This is another urgent indent for a Lock culvert shutter, received in the first week of June 1924 for immediate compliance before 10th June 1924 when the canals in the Western delta were proposed to be opened. There was a mistake in the indent. The matter was referred to the Subdivisional Officer, Western, by telephone and on receipt of the reply the next day, the indent was complied with, without inconveniencing navigation.

(vi) *Job No.* 326-*E.*—Sketch said to have been sent with the indent was not received. This is an indent to be complied with before 1st June 1924. Indent was received on 15th May 1924; a telephonic message was sent on 16th May 1924. On this, the sketch was received and indent complied with, as desired.

(vii) *Job Nos.* 339-*E and* 340-*E.*—These are indents received about the 20th of May 1924 for two big sized shutters, for regulators in Ryves main canal to be complied with before 1st June 1924. There were discrepancies between the dimensioned sketches and the old shutters received. The concerned section officer was immediately sent for on 21st May 1924 to make the necessary corrections. It was therefore possible to comply with the indent as required.

(viii) *Job No.* 325-*E.*—An estimate for renewing the mitre piece of the Veeranki lock gate was sanctioned rather late, and there was hardly a fortnight available for the completion of the work. However, it was got through within the limited time. The necessity for the existence of a workshop at Bezwada could well be realized by every Delta officer.

It is impossible to transfer these works to an outstation shop and so the second query in the paragraph does not arise.

10. There are trained workmen available locally and their wages are much less than that of Madras men. Bezwada could easily compete with Madras in the cost of floating plant work that may be proposed to be built, and it is not in the interests of Government that the floating plant should be built at Madras.

11. Certainly yes, it is not worth maintaining a workshop, if it be for mere repair works. Moreover, from experience, it is seen that the items required for the urgent irrigation works cannot be promptly and efficiently executed with a repair shop at Bezwada.

12. With note against paragraph 11 the question in paragraph 12 does not arise.

13. The Executive Engineer is generally a Mechanical Engineer, and he personally directs the more important works undertaken in shops.

There is a Workshop Superintendent and an experienced head maistri for supervision.

14. Designs are prepared both in the Division and Subdivision offices, and no charges are made for Government works. But for private jobs 5 per cent of the estimate amount is recovered if the job is not executed by the Workshops.

15. Half the pay of Subdivisional Officer, the full cost of the clerical and drawing establishment in the Subdivision and one-fourth the pay of the Executive Engineer and his office establishment.

16. The workshops were run with a profit of Rs. 443 during 1919–20 and not 1920–21 (vide questionnaire). During this year 1919–20 there were jobs costing over one lakh of rupees, and no charges towards establishment have been debited. During 1920–21, though the amount realized was decent, there has been a loss on account of heavy repairs necessary for Tools and Plant costing about Rs. 5,316. It is only from and after 1922–23, the pay of the superior establishment (vide answer to question 15) was added on to the Workshop charges. This accounts for the increase in the loss against 1922–23. During 1922–23, though the indirect charges were raised from 9 per cent to 23 per cent to meet establishment charges, e.g. ($\frac{1}{2}$ the pay of the Executive Engineer and his office establishment, both permanent and temporary) the extra amount realized by this increase was about Rs. 10,367, while the amount charged as per actuals was Rs. 10,454 + 1,631 + 327 + 100 + 100 + 1,164 = Rs. 14,076. This by itself accounts for the loss of nearly Rs. 4,000. The amount realized at $2\frac{1}{2}$ per cent on the outturn towards interest on the capital cost of shops is Rs. 1,851, while the actual amount debited towards interest at 4 per cent is Rs. 2,541. This is responsible for an additional loss of about Rs. 700. Thus, these two reasons account for the major portion of loss during the year 1922–23.

In years when extensive repairs to machines, which actually improve the depreciated value of the machines, are carried out, it is but reasonable to allow less depreciation that year, or debit the value of the said repairs, in excess over the ordinary permissible repairs towards increase of capital cost of machines in shops. If this suggestion which appears to be reasonable be adopted, the loss would be much less.

17. As can be seen from the profit and loss account for the years 1922–23 and 1923–24, the average charges, direct and indirect, work out to about Rs. 20,000. For the shops, the total

average outturn, including indirect charges, may be taken as Rs. 1,00,000 per year, (i.e.), Rs. 20,000 would be indirect charges on Rs. 80,000 worth of work. This works to Rs. 25 per cent.

If the indirect charges be raised to this figure, e.g., 25 per cent, it is possible to work the Bezwada shops without loss except during extraordinary years. The indirect charges of the Madras Public Works Workshops may be compared. (This is 33 per cent.)

18. The machines available in these shops are handy enough and need not at all be replaced by smaller ones.

19 There is a schedule of rates current in the shops.

ENCLOSURE No. 1.—Vide answer to question No. 1.

1. Executive Engineer, Kistna Central Division—Invariably a Mechanical Engineer from amongst the Indian Service of Engineers.
2. Assistant Engineer, Public Workshops Subdivision—Generally a qualified Engineer from the Indian or Provincial Engineering Service.

	RS.	A.	P.
3. Workshop Superintendent (General Mechanic with practical Workshop experience.)	300	0	0
4. Head maistri	80	0	0
5. Dock maistri	35	0	0
6. Time-keeper and tools clerk	31	0	0
7. Beltman and oiler	24	0	0
8. Driver and fireman	18	0	0
9. Head coolie	16	0	0
10. Head guard lascar	13	0	0
11. Eight guard lascars at Rs. 12 each	12	0	0
12. Scavenger	12	0	0
Office Establishment of Public Workshops Subdivision.			
13. Head clerk	35	0	0
14. Accounts clerk or second clerk	35	0	0
15. Typist (receiving, despatching and typing fair copies)	50	0	0
16. Office lascar	12	0	0
Drawing Branch.			
17. Draughtsman	65	0	0
18. Tracer	30	0	0

ENCLOSURE No. 2.

B—List of important works carried out in the Public Works Workshops, Bezwada, during the year 1921–22—Vide answers to question No. 3.

Serial number.	Job number.	Particulars of work done.	Amount of work order.
		KISTNA CENTRAL DIVISION.	RS.
1	6808	Improvements to punt No. 77	3,620
2	6838	Do. No. 189	..
3	7289	Special repairs to bucket dredger No. 4, estimate Rs. 4,600	4,600
4	7295	Special repairs to steamer "Havelock"	7,650
5	7466	Renewing teakwood beams for hauling up launching staff boats, punts in boatyard at Bezwada.	2,400
6	7810	Special repairs to Bezwada undersluices	4,355
7	7934/6865	Special repairs to tramline to the wagons at the Mogalarajapuramiquarry, Bezwada	4,670
		KISTNA EASTERN DIVISION.	
8	7253	Constructing a combined lock and regulator at 27/2 of Pullern canal	4,500
9	7254	Do. do.	7,600
10	8202	Lock establishment sheds	710
11	7777	Renewing the lower gates of Kanikipad lock	5,560
12	8338	Preparing centerings for Kesarapalli bridge	4,000
		KISTNA WESTERN DIVISION.	
13	7819	Constructing Government Girls' School at Kollur	25,300
		GODAVARI WESTERN DIVISION.	
14	7889	Constructing a second-class wooden ballacut for Chettipet crossing	980
15	7930	Constructing a mild steel ballacut at 32 miles 5 furlongs 100 feet of Gotavadi village and Velpur canal.	1,370
		MISCELLANEOUS.	
16	6582	Railway couplings work	10,000
17	7341	Constructing a record boat for Salt Department	1,700
18	7343	Constructing a budgerow for Salt Department	4,220

B—List of important works carried out in the Public Works Workshops, Bezwada, during the year 1922–23.

Serial number.	Job number.	Particulars of work done.	Amount of work order.
		KISTNA EASTERN DIVISION.	Rs.
1	7777	Renewing the lower gates of Kankipad lock	5,660
2	8202	Constructing a combined lock to regulator at 27/2 of Pulleru canal	491
3	8476	Renewing teakwood shutters and beams of east side channel head sluice	350
4	8505	Repairing and refitting portable engine Ry. No. 712, with parts to supply the same, for Balliparru work.	410
5	8840	Converting the regulator, regulating dam at 35 miles 10 chains of west side channel, with a regulator, estimate Rs. 265.	425
		KISTNA CENTRAL DIVISION.	
6	7810	Special repairs to Bezwada undersluice work	4,365
7	8352	Improvements to lime shed in the quarry compound at Bezwada, estimate Rs. 1,880 ..	1,880
8	9134	Improvements to surki shed in the quarry compound, Bezwada, estimate Rs. 1,960 ..	1,960
9	8521	Polampalli anicut shutter work	1,300
10	8950	Purchasing a ninth engine and pump for Divi Pumping System, for extending the engine-house and to fit the same, estimate Rs. 3,16,300.	305
11	8372	Repairing the falling shutter of the Kistna anicut for 1922–23	1,635
		KISTNA WESTERN DIVISION.	
12	8993	Constructing quarters for 2 sub-inspectors, and huts for head and 33 constables at Ongole, estimate Rs. 43,000. C.R. No. 120, dated 19-20.	3,400
		MISCELLANEOUS.	
13	8442	Repairing points and crossings of Cuddapah division	72
14	8456	Renewing the shutter of the Guntur nalla old undertunnel surplus weir, estimate Rs. 380.	520
15	8548	Repairs to Adivipalem lock and weir for 1922-23, estimate Rs. 175	270
16	8556	Repairing steam road-roller of Local Fund Department	355
		GODAVARI WESTERN DIVISION.	
17	9097	Improvements to Sub-Registrar's office at Tanuku, estimate Rs. 2,900	2,930
18	8534	Improvements to punt No. 77, estimate Rs. 3,620	3,620

B—List of important works carried out in the Public Works Workshops, Bezwada, during the year 1923–24.

Serial number.	Job number.	Particulars of work done.	Amount of work order.
		KISTNA CENTRAL DIVISION.	Rs.
1	8352	Improvements to lime shed in the quarry compound at Bezwada, estimate Rs. 1,880 ..	1,880
2	9134	Improvements to surki shed in the quarry compound, Bezwada	1,260
3	9746	Special repairs to steamer "Alexandra"	2,550
4	9752	Making and fitting a new mud collector for Ry. 711, including C I die for stamping the plate and sundry repairs to fittings, etc.	175
5	9772-C	Repairs to portable engine Ry. No. 746 centrifugal pump, etc.	170
6	9756	Special repairs to punt No. 87	490
7	9899	Special repairs to punt No. 88	480
8	9946	Improvements to staff boat No. 148	200
9	9901	Special repairs to punt No. 70	2,050
10	9902	Special repairs to punt No. 73	1,750
11	9900	Special repairs to punt No. 52	950
12	9613	Special repairs to Narasannapalem escape at 24/6 of Ellore canal	800
13	9698	Making record-racks for the Sub-Registrar's office, Gannavaram	1,800
14	9720	Improvements to the District Munsif's Court at Masulipatam	500
15	9813 & 9819	Constructing first-class Sub-Registrar's office at Tsallapalli	1,540
		KISTNA WESTERN DIVISION.	
16	9398	Making iron record-racks for Sub-Registrar's office at Ponnur	1,380
17	9609	Improvements to Police station-house at Karempudi	360
18	9629	Making iron record-racks for the Sub-Registrar's office at Repalle	2,220
19	9773	Repairs to portable engine No. 747	155
20	9790	Constructing a second-class Sub-Registrar's office at Santanuthalapad	1,350
21	9802	Constructing a wooden pinnace 18' long for Santaravur section	230
		GODAVARI WESTERN DIVISION.	
22	9097	Making iron record-racks for Sub-Registrar's office at Tanuku	2,930
23	9737	Constructing a second-class ballacut for Mogallu crossing	1,125
24	9778	Constructing a second-class ballacut for Kamsalabethapudi	1,125
		MISCELLANEOUS.	
25	9738	Constructing a pinnace for Revenue Inspector, Alapad, Kaikalur taluk	230

ENCLOSURE 3 (*a*).

No. 1575 W., 10th December 1917.

STATEMENT B—Vide answer to question No. 5.

Revised statement of profit and loss of the Public Works Workshops at Bezwada.

Item number and particulars of receipts.	Amounts. 1916–17.	1915–16.
	Rs. A. P.	Rs. A. P.
1. Two per cent on the value of work done for depreciation.	1,892 1 6	2,064 6 2
2 One per cent for tools and plant ..	946 0 9	1,032 3 1
Total ..	2,838 2 3	3,096 9 3
3. Profit on brass casting	75 14 9	54 13 10
4. Do. saw-pit operations	1,937 10 1	1,324 3 0
5. Loss on general charges	—1,299 4 1	—322 10 2
6. Do. iron castings	— 200 6 5	—259 2 5
Total ..	513 14 4	797 4 3
Total ..	3,352 0 7	3,893 13 6
Net loss ..	2,118 0 10	1,670 10 4
Grand total ..	5,470 1 5	5,564 7 10

Item number and particulars of charges.	Amounts. 1916–17.	1915–1916.
	Rs. A. P.	Rs. A. P.
Direct charges.		
1. Repairs to buildings	515 0 7	665 12 4
2. Contingent charges	90 6 9	91 10 6
3. Bonus to subscribers of other miscellaneous provident funds.	134 8 0	..
4. Repairs and carriage of tools and plant.	1,795 2 1	2,318 4 6
Total ..	2,535 1 5	3,075 11 4
Indirect charges.		
5. Depreciation on block on Rs. 19,620 at 3 per cent.	589 0 0	603 12 6
6. Depreciation on tools and plant and machinery on Rs. 50,263 at 4 per cent.	2,011 0 0	1,877 0 0
7. Leave and pension allowance ..	..	..
8. (*a*) Four per cent on increase to the capital from 1910–11 to end of 1915–16, i.e., on Rs. 8,299.	332 0 0	..
(*b*) Four per cent on half the increase in capital during 1916–17, i.e., on 149/2 or Rs. 74½.	3 0 0	8 0 0
Total ..	2,935 0 0	2,488 12 6
Grand total ..	5,470 1 5	5,564 7 10

ENCLOSURE 3 (*b*).

STATEMENT B—Profit and loss of the Public Works Workshops, Bezwada, for 1917–18.

Item number and particulars of receipts.	Amounts. 1917–18.	1916–17.
	Rs. A. P.	Rs. A. P.
1. Two per cent on the value of work done for depreciation	1,371 10 3	1,892 1 6
2. One per cent on the value of work done for tools and plant	685 13 1	946 0 9
Total ..	2,057 7 4	2,838 2 3
3. Loss on brass casting	— 17 10 6	75 14 9
4. Do. iron casting	— 301 7 6	— 200 6 5
5. Do. saw-pit operations	— 21 13 7	1,937 10 1
6. Do. general charges	— 1,256 6 0	— 1,299 4 1
Total ..	— [illegible] 5 9	513 14 4
Total ..	460 1 7	3,352 0 7
Net loss ..	4,046 2 4	2,118 0 10
Grand total ..	4,506 3 11	5,470 1 5

Item number and particulars of charges.	Amounts. 1917–18.	1916–17.
	Rs. A. P.	Rs. A. P.
Direct charges.		
1. Repairs to buildings	609 5 6	515 0 7
2. Contingent charges	87 11 8	90 6 9
3. Bonus to subscribers of other miscellaneous provident funds	140 0 0	134 8 0
4. Repairs and carriage of tools and plant	758 2 9	1,795 2 1
Total ..	1,595 3 11	2,535 1 5
Indirect charges.		
5. Depreciation on block on Rs. 19,031 at 3 per cent	571 0 0	589 0 0
6. Depreciation on tools and plant and machinery on Rs. 50,054 at 4 per cent	2,002 0 0	2,011 0 0
7. (*a*) Four per cent on half the increase in capital cost during 1917–18.	..	..
(*b*) Four per cent on increase to the capital from 1910–11 to end of 1916–17, i.e., on Rs. 8,448 ..	338 0 0	335 0 0
Total ..	2,911 0 0	2,935 0 0
Grand total ..	4,506 3 11	5,470 1 5

ENCLOSURE 3 (*c*).

STATEMENT B—Profit and loss account of the Public Works Workshops at Bezwada for the year 1918–19.

Item number and particulars of receipts.	1918–19.	1917–18.
Indirect charges.	Rs.	Rs.
1. One per cent charge recovered on value of work done (viz., Rs. 1,66,858) on account of leave and pension allowances.	1,669	1,399
2. Three and a half per cent charges on value of work done for interest.	5,840	4,896
3. Two per cent charges on value of work done for depreciation.	3,337	2,797
4. One and a half per cent charges for tools and plant.	2,503	2,098
Total ..	13,349	11,190
Miscellaneous receipts.		
5. Hire of heavy plant and machinery ..	..	124
6. Rents for buildings	276	276
Total ..	276	400
7. Profit and general charges	..	1,053
Profit on steam power	549	225
Profit on saw-pit account, Yegisi wood ..	311	693
Do. Nallamadi wood.	1,049	655
Do. Pega wood ..	532	..
Do. Godavari teak ..	242	..
Total ..	2,683	2,626
Grand total ..	16,308	14,216

Item number and particulars of charges.	1918–19.	1917–18.
Direct charges.	Rs.	Rs.
8. Working expenses—		
(*a*) Repairs to buildings	724	1,525
(*b*) Repairs and carriage of tools and plant and machinery.	3,285	3,330
Total ..	4,009	4,858
Indirect charges.		
9. By depreciation—		
(*a*) At 3 per cent on block on Rs. 55,961.	1,675	832
(*b*) At 4 per cent on tools and plant on Rs. 65,141.	2,606	2,644
10. By leave and pension allowance at 14 per cent on Rs. 4,784 (cost of special regular establishment in shops and debited to jobs).	670	641
11. By interest on capital at 3½ per cent on Rs. 1,29,847. Add interest on half increase of capital cost of Rs. 5,342/2.	93	— 54
12. By bonus to Workshop Superintendent's subscription to other miscellaneous Provident funds.	187	198
By profit ..	2,623	454
Grand total ..	16,308	14,216

ENCLOSURE 3 (*d*).

STATEMENT B—Profit and loss account of the Public Works Workshops, Bezwada, for 1919–20.

Item number and particulars of receipts.	1919–20.	1918–19.
	Rs. A. P.	Rs. A. P.
1. One per cent on the value work done for repairs and depreciation of buildings.	940 12 6	..
2. Four and a half per cent on the value of work done for repairs and carriage and depreciation of tools and plant and machinery.	4,333 7 8	..
3. Half per cent on the value of work done for interest.	470 6 2	..
Total ..	5,644 10 3	3,006 13 8
4. Profit on brass castings	78 9 8	— 46 5 4
5. Loss on iron castings	— 196 2 1	170 12 3
6. Profit on saw-pit operations	256 5 9	389 3 6
7. Profit on general charges	352 3 7	— 919 6 9
Total ..	491 0 11	— 747 4 10
	6,135 11 2	2,259 8 10
8. Net loss	..	3,033 13 9
Grand total ..	6,135 11 2	5,293 6 7

Item number and particulars of charges.	1919–20.	1918–19.
Direct charges.	Rs. A. P.	Rs. A. P.
9. Repairs to buildings	936 0 5	531 1 3
10. Contingent charges	..	99 1 5
11. Bonus to subscribers of other miscellaneous Provident funds.	125 0 0	120 7 1
12. Repairs and carriage of tools and plant.	2,154 1 11	1,702 12 10
Total ..	3,215 2 4	2,453 6 7
Indirect charges.		
13. Depreciation on block on Rs. 18,072 at 3 per cent.	542 0 0	559 0 0
14. Depreciation on tools and plant and machinery on Rs. 45,916 at 4 per cent.	1,837 0 0	1,943 0 0
15. Four per cent on increase to capital from 1910–11 to end of 1918–19.	153 0 0	338 0 0
16. Four per cent on half the decrease during 1919–20.	— 65 0 0	..
Total ..	2,477 0 0	2,840 0 0
Net profit ..	443 8 10	..
Grand total ..	6,135 11 2	5,293 6 7

ENCLOSURE 3 (*e*).

STATEMENT B.—Profit and Loss account of the Public Works Workshops, Bezwada, for 1920–21.

No. 1622 *W., dated* 12*th November* 1921.

Item number and particulars of *Receipts.*	1920–21. Rs. A. P.	1919–20. Rs. A. P.
1. One per cent on the value of work done for repairs and depreciation of buildings.	1,078 8 11	..
2. Four and a half per cent on the value of work done for repairs and carriage and depreciation of tools and plant and machinery.	4,853 11 10	..
3. Half per cent on the value of work done for interest.	539 4 6	..
Total ..	6,471 9 3	5,644 10 3
4. Profit on brass castings	20 14 7	78 9 8
5. Loss on iron castings	—227 0 7	—196 2 1
6. Loss on saw pit operations	—280 12 4	256 5 9
7. Profit on general charges	1,221 7 10	352 3 7
Total ..	734 9 6	491 0 11
	7,206 2 9	6,135 11 2
8. Net loss	1,841 8 1	..
Grant total ..	9,047 10 10	6,135 11 2

Item number and particulars of *Charges.*	1920–21. Rs. A. P.	1919–20. Rs. A. P.
Direct charges—		
1. Repairs to buildings	959 3 5	936 0 5
2. Bonus to subscribers of other miscellaneous provident funds.	62 8 0	125 0 0
3. Repairs and carriage of tools and plant.	5,315 15 5	2,154 1 11
Total ..	6,337 10 10	3,215 2 4
Indirect charges—		
4. Depreciation on block, Rs. 17,530, at three per cent.	526 0 0	542 0 0
5. Depreciation on tools and plant and machinery, Rs. 44,712, at four per cent.	1,788 0 0	1,837 0 0
6. Four per cent on increase to capital from 1910–11 to end of 1919–20, Rs. 1,064.	43 0 0	153 0 0
7. Four per cent on half the increase during 1920–21, Rs. 17,660-2-0.	353 0 0	—55 0 0
Total ..	2,710 0 0	2,477 0 0
8. Net profit	..	443 8 10
Grand total ..	9,047 10 10	6,135 11 2

ENCLOSURE 3 (*f*).

STATEMENT B.—Profit and Loss account of the Public Works Workshops, Bezwada, for the year 1921–22.

Item number and particulars of *Receipts.*			1921–22. Rs. A. P.	1920–21. Rs. A. P.
Indirect charges—				
1. From April 1921 to August 1921—	Rs. A. P.			
(*a*) 1 per cent on the value of work done for repairs and depreciation of buildings ..	437 10 9			
(*b*) 4½ per cent on the value of work done for repairs and carriage and depreciation of tools and plant.	1,969 8 7			
(*c*) ½ per cent on the value of work done for interest.	218 13 5			
			2,626 0 9	
2. From September 1921 to March 1922—				
(*a*) 1½ per cent for repairs and depreciation of buildings ..	709 7 6			
(*b*) 2½ per cent for interest ..	1,182 12 6			
(*c*) 5 per cent for repairs and carriage and depreciation of tools and plant.	2,365 4 11			
(*d*) 14 per cent for establishment..	6,622 13 11			
			10,880 6 10	
23 per cent ..		Total ..	13,506 7 7	6,471 9 3
3. Profit on brass castings			53 7 8	20 14 7
4. „ on iron castings			42 8 2	—227 0 7
5. Loss on saw pit operations			—263 9 0	—280 12 4
6. „ on general charges			—1,176 3 1	1,221 7 10
		Total ..	—1,343 12 3	734 9 6
			12,162 11 4	7,206 2 9
7. Net loss			3,149 2 11	1,841 8 1
			15,311 14 3	9,047 10 10

Item number and particulars of *Charges.*			1921–22. Rs. A. P.	1920–21. Rs. A. P.
Direct charges—				
8. Repairs to buildings			925 1 4	959 3 5
9. Repairs and carriage of tools and plant.			2,502 12 11	5,315 15 5
10. Bonus to subscribers of other miscellaneous provident fund ..			150 0 0	62 8 0
11. * Establishment charges from September 1921 to March 1922—	Rs. A. P.			
Permanent	4,865 0 0			
Temporary	1,447 0 0		6,312 0 0	
12. † Contingencies ..	262 0 0			
Stationery and printed forms ..	200 0 0		462 0 0	
Total, Direct charges ..			10,351 14 3	6,337 10 10
Indirect charges—				
13. Depreciation on value of block at 3 per cent on Rs. 17,127			514 0 0	526 0 0
14. Depreciation on value of tools and machinery at 4 per cent on Rs. 44,510			1,780 0 0	1,788 0 0
15. ‡ Interest at 4 per cent on—				
(i) increase to capital from 1910–11 to end of 1920–21 (§ Rs. 18,724) from April 1921 to August 1921, i.e., for 5 months ..	Rs. A. P. 312 0 0			
(ii) Capital at end of 1920–21, Rs. 80,754, for 7 months (September 1921 to March 1922)..	1,884 0 0			
(iii) Half the decrease of capital during the year $\left(\frac{10,572}{2}\right)$	—211 0 0		1,985 0 0	396 0 0
16. Leave and pension allowances at 14 per cent on the cost of permanent establishment, Rs. 4,865			681 0 0	..
Total, Indirect charges ..			4,960 0 0	2,710 0 0
Grand total ..			15,311 14 3	9,047 10 10

* Vide paragraph 5 (2) and (3)
† Do. 5 (8)
‡ Do. 5 (1)
To end of 1910–20.. Rs. 1,064
During 1920–21 .. .. „ 17,660
„ 18,724

} of the Accountant-General's report on the accounts for 1920 and paragraph 3 of G.O. No. 1059 W., dated 27th July 1921.

ENCLOSURE 3 (*g*).

STATEMENT B.—Profit and Loss account of the Public Works Workshops, Bezwada, for 1922–23 prepared as per G.O. No. 1059 W., dated 27th July 1921

Item number and particulars of *Receipts.*		1922–23.	1921–22.
		RS. A. P.	RS. A. P.
1. 2½ per cent interest		1,851 3 9	1,592 15 7
2. 1½ per cent repairs and depreciation of buildings		1,110 11 11	955 12 7
3. 5 per cent repairs and carriage and depreciation of tools and plant		3,702 5 4	4,334 13 6
4. 14 per cent establishment		10,366 11 4	7,935 14 4
	Total	17,031 0 4	14,819 8 0
	RS. A. P.		
5. Profit and loss—			
(*a*) Profit on brass casting	21 1 0		
(*b*) Profit on saw pit operations	922 11 0		
	943 12 0		
(*c*) Loss on iron casting	244 8 0		
Loss on general charges.	2,423 12 0		
	*2,668 4 0		
Net	—1,724 8 0	—1,724 8 0	—1,343 12 3
Net earnings		15,306 8 4	13,475 11 9
Net loss		5,519 6 6	8,611 12 3

Item number and particulars of *Charges.*	1922–23.	1921–22.
	RS. A. P.	RS. A. P.
Direct charges—		
1 Repairs to buildings	782 1 1	925 1 4
2. Repairs and carriage of tools and plant	1,216 7 3	2,479 0 0
3 Bonus to subscribers of other miscellaneous provident funds	..	85 8 6
4. Working expenses—		
Establishment—		
Permanent	10,454 0 0	..
Temporary	1,631 0 0	..
Contingencies	327 0 0	..
Cost of stationery	100 0 0	..
Cost of printed forms	100 0 0	..
	12,612 0 0	12,023 0 0
Total, Direct charges	14,610 8 4	15,512 8 0
Indirect charges—		
5. Depreciation on value of block at 3 per cent	499 6 0	514 10 8
6. Depreciation on value of tools and plant and machinery at 4 per cent	1,741 0 0	1,780 0 0
7. Interest on capital at 4 per cent on Rs. 70,184 — Rs. 13,300–2–0 or Rs. 63,534	2,541 0 0	3,019 0 0
8. Leave and pension allowance at 14 per cent on cost of permanent establishment	1,464 0 0	1,262 0 0
	6,245 6 6	6,575 0 0
Total, Indirect charges	20,855 14 10	22,087 8 0

Adjusted in the accounts for 2/3 supplemental.

ENCLOSURE 3 (*h*).

STATEMENT B.—Profit and Loss account of the Public Works Workshops, Bezwada, for the year 1923–24, prepared as per G.O. No. 1059 W., dated 27th July 1921.

Item number and particulars of *Receipts.*		1923–24.	1922–23.
		RS. A. P.	RS. A. P.
1. Two and a half per cent interest		1,252 12 0	1,851 3 9
2. One and a half per cent repairs and depreciation of buildings.		751 11 0	1,110 11 11
3. Five per cent repairs and carriage and depreciation of tools and plant.		2,505 10 0	3,702 5 4
4. Fourteen per cent establishment		7,015 10 0	10,366 11 4
		11,525 11 0	17,031 0 4
	RS. A. P.		
5. Profit and loss—			
(*a*) Profit on brass castings.	30 6 0		
	—30 6 0		
(*b*) Loss on saw pit operations.	568 6 0		
Loss on iron castings.	307 12 0		
Loss on general charges.	2,015 9 7		
Net loss	2,861 5 7	2,861 5 7	1,724 8 0
Net earnings		14,387 0 7	15,306 8 4
Net loss		5,632 6 5	5,549 6 6
		20,019 7 0	20,855 14 10

Item number and particulars of *Charges.*	1923–24.	1922–23.
	RS. A. P.	RS. A. P.
Direct charges		
1. Repairs to buildings	2,579 3 0	782 1 1
2. Repairs and carriage of tools and plant	2,080 14 0	1,216 7 3
3. Working expenses—		
RS.		
Establishment—Permanent .. 8,019		
Do. —Temporary .. 1,141		
Contingencies 575		
Cost of stationery 100		
Cost of printed forms .. 100		
	9,935 0 0	12,612 0 0
Total, Direct charges	14,595 1 0	14,610 8 4
Indirect charges.		
4. Depreciation on value of block at 3 per cent.	485 15 0	499 6 6
5. Depreciation on value of tools and plant and machinery at 4 per cent.	645 7 0	1,741 0 0
6. Interest on capital at 4 per cent on $\frac{5,170}{2}$ 56,883 or 54,298.	2,170 0 0	2,541 0 0
7. Leave and pension allowances at 14 per cent on cost of permanent establishment.	1,123 0 0	1,464 0 0
Total, Indirect charges	5,424 6 0	6,245 6 6
Total	20,019 7 0	20,855 14 10

INDIRECT CHARGES.

—	1916-17.	1917-18.	1918-19.	1919-20.	1920-21.	1921-22.	1922-23.	1923-24.	1924-25.
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
April	284 10 3	169 1 2	46 8 0	458 13 1	140 15 6	314 15 0	1,022 1 11	236 0 0	525 11 0
May	527 11 10	324 6 1	754 4 10	827 11 4	499 13 8	774 11 2	582 13 7	990 10 0	1,065 14 0
June	718 2 2	475 11 6	468 8 5	962 5 9	1,249 2 0	890 8 3	2,329 6 4	866 3 0	1,662 10 0
July	584 0 11	613 0 6	451 13 1	657 14 10	921 7 4	1,026 15 5	603 9 6	678 8 0	1,832 1 0
August	518 4 4	795 0 11	217 0 5	975 12 1	671 15 11	931 15 4	267 3 0	650 8 0	2,254 0 0
September ..	376 9 0	424 5 8	183 14 7	768 7 9	916 7 11	2,057 11 1	3,316 1 8	1,345 11 0	2,301 4 0
October .. .	305 8 11	233 4 6	344 6 2	421 14 11	445 2 11	1,130 8 6	402 12 7	491 15 0	1,318 8 0
November ..	262 0 4	241 1 11	712 8 11	609 5 2	652 5 0	1,442 5 8	554 12 0	994 3 0	1,068 12 0
December.. ..	419 9 8	108 11 9	645 0 6	554 0 7	1,551 7 3	671 13 7	881 9 0	1,478 7 0	..
January	426 9 3	133 0 4	4 8 6 6	702 11 1	680 1 9	650 13 8	847 8 0	771 1 0	..
February	648 13 5	262 12 10	326 9 2	558 5 3	947 15 11	2,394 2 5	160 5 0	1,660 12 0	...
March	620 14 4	294 15 11	516 11 9	625 13 9	585 1 9	2,140 8 9	4,266 0 0	1,.24 9 0	..
First Suppl. ..		11 9 0	1 2 10	314 10 2	365 11 11	336 12 10	1,096 13 0	137 4 0	..
Second Suppl. ..	2 12 2	37 5 7	..	— 0 14 5	79 9 7	55 10 4	700 0 9		..
Total ..	5,676 4 7	4,114 7 8	5,126 14 4	8,466 15 4	9,707 5 11	14,819 8 0	17,031 0 4	11,525 11 0	12,028 12 0

Z. HARINARAYANA,
Assistant Engineer, P.W.D. Workshops.

BEZWADA WORKSHOPS.

ANSWERS TO QUESTIONNAIRE

By M.R.Ry. L. Venkatakrishna Ayyar Avargal, B.A., B.E.,

Executive Engineer, Public Works Department.

Question 1—

This information has been furnished by the Executive Engineer, Kistna Central Division, in his No. 1885-General, dated 29th November 1924.

Question 2—

This has also been furnished by the Executive Engineer, Kistna Central Division, but I think the present cupola which is 24 inches internal diameter is easily capable of castings up to 1 ton each and is uneconomical to run for any outturn of less than 2 to 3 tons per heat. But the present practice of crucible castings melted in a pit furnace is less economical still, while it must be said to its credit that it gives quite good, grey, soft iron castings free from blow holes and having very few rejections. A smaller cupola is a desideratum to reduce the cost of castings. One was designed by me, but I had to give it up on account of its costing over Rs. 1,200 to make and instal using only scrap iron taken out of old floating plant for the shell. If one is put in, the cost of castings can be reduced by at least a third.

Question 3—

This is fully replied to by the Executive Engineer, Kistna Central Division.

Question 4—

The Shops can and will undertake work for the local bodies and municipalities if they would only entrust the work to us. At present they fight shy of us because we can only give them *an estimate* and not a *firm quotation* for a fixed lump sum and which will not be exceeded. On the other hand they take an estimate from us to reduce the market rates to their advantage and only give us work which is beyond the capacity of outside shops. For instance the Bezwada municipality asked me unofficially to inspect their Diesel engines at the water-works and advise them as to the best means of providing a fresh set of bearings. I did so and gave them an estimate which was hardly 50 per cent of what they had paid for the same work before. But instead of giving us the work they negotiated with a contractor on the basis of our rates and got him to underquote us. Result:—We lost the job, and the municipality used us to benefit themselves out of our gratuitous advice. This is unfair dealing, and the next time they wanted something examined, I told them that I could not do it unless there was reasonable chance of the order coming to us I was willing to stand fair competition and sealed tenders, but not this sort of thing. I knew of a private party—a mill owner—who came with some $\frac{3}{8}$ inches mild steel plates for being rolled into chimney stacks, supplying his own labour and at cost only of the machine hire. I told him I could not do it, but was willing to do it if the job was given to us entirely. There are no other rolling mills in Bezwada and the party ultimately gave the work to us. They do this, because they think our general charges are high.

Question 5—

Accounts on a commercial basis are kept. It has been regularly working at a loss for the past three or four years. The division consists, as it was before retrenchment, of—

(1) Workshops subdivision,
(2) Headquarters subdivision,
(3) Muniyeru subdivision,
(4) R.C. subdivision,
(5) Divi subdivision,
(6) Divi Pumping station.

Although there are only three Subdivisional Officers and four Assistant Engineers, these six are independent self-contained units of equal importance and fully equivalent to a subdivision in administrative work. The proportion of Executive Engineer's pay and his office that should go to make up the general charges is really $\frac{4}{6}$ and not more and of the Headquarters subdivisional officer only $\frac{1}{3}$. If this is done it will be found that the general and indirect charges have paid their way every year.

Question 6—

No. Not except in the months of March to June. We can do heaps of work for the remaining eight months of the year. Repairing and reconditioning road rollers—hand, motor and steam—manufacture of trusses of wood or steel for buildings or road bridges, making of doors, windows and furniture for schools and hospitals—all this is work required by the local boards and municipalities and if these are diverted to the Government Shops we could easily make the shops pay and reduce the overhead charges considerably. The busiest season is March, April and May when the canals are closed and the floating plants are repaired. The irrigation sluices and navigation works are dry and need urgent repair and reconditioning for the ensuing irrigation season. This is the rush season.

Question 7—

Yes. Please see above. In addition we can rethread boring pipes, repair boring and other tools, carry out repairs to all manufacturing equipment in the three districts with expedition if only the Industrial Department will deal with us, as they would with their own shops.

Question 8—

The work in the Bezwada Shops is now at a very low ebb, and it is hard to find anything that can be transferred to Madras. Only the very urgent works are now dealt with by us and they cannot well be transferred elsewhere without considerable dislocation of local work.

Question 9—

No. During the rush period, March to June, the heads are full in both cases, the slack periods are common to both. Either of the shops cannot by itself cope with the work in both places during the rush period. Their amalgamation is consequently impossible unless the capacity of the one retained is considerably increased. Besides, to send a staff boat from Bezwada to Dowlaishweram it costs about Rs. 50 and to do this for the 120 odd items of plant and 200 odd ballacuts would easily cost Rs. 10,000 for transport alone, an unnecessary outlay without any return.

Question 10—

The cost of transport is the first difficulty. Transport by rail is out of the question for floating plant over 20 feet in length and the navigability of the Buckingham Canal is so uncertain that one cannot be sure of distance from Madras to Bezwada being covered in anything under two months, with the consequent cost of establishment, etc. Recently a set of punts were sent to Madras in January 1923 (I think) and did not reach Madras till the middle of February and a cost of over Rs. 400 was incurred in the transhipment. The canals closed then, and the punt was lying at the Madras wharf till June when it returned to Bezwada with articles which were not originally intended to be sent by punt.

Secondly the labour charges in Madras are usually higher than the charges at Bezwada, and particularly so for punching and rivetting, which constitute the major portion of work on these plants.

Thirdly, this class of plant is not usually built at Madras on account of the poor navigability of the canals in that locality while at Bezwada and Dowlaishweram, on account of the large number of boats built for private parties and plying, experienced workmen in boat building are always available.

It will therefore be unwise to transfer the boat building from Bezwada or Dowlaishweram to Madras.

Question 11—

Yes. It will impair the efficiency of the shops and lower the capacity of the workmen employed therein. As it is, it is found difficult to keep a reasonable number of men engaged all the year round to meet the sudden demands during the closure months; and if what little original work is done is taken away in non-closure months, it will tend to the workmen migrating to where they can get continuous employment, and the rush months will have to be met by either a poorer quality of work with higher wages bill, or importing men at an extra cost. The experiment of importing men from Dowlaishweram and doing the annual repairs to the floating plant locally at Chettipet was tried by an Executive Engineer of Godavari Western Division once, and the contractor had to pay 2 annas per rupee extra wage for every trained man obtained by him, and I understand the resulting work was so bad that about twice the outlay had to be incurred in the succeeding year to restore the plant to a proper state of repair.

Question 13—

There is a fully trained foreman in immediate charge of the shops. His work is supervised, checked and passed by an Assistant Engineer who measures all work and disburses payments. The Executive Engineer is usually a qualified mechanical engineer, who spends practically the whole of every forenoon he is at headquarters at the shops, giving detailed directions for the execution of the different jobs at the shops.

Question 14—

Yes. Designs are prepared, but for Public Works Department no charges are levied. Nor are they levied in the case of local boards and municipalities if the work is ultimately entrusted to the shops for execution. If it is not 2½ per cent (I believe) is levied on estimate cost for the work of estimating. But this is not always insisted on, in order to attract work. Un-official advice is often given and approximate estimates furnished without any charge, so as not to scare away what little of work does come in. But it very often happens that district boards object to paying advance deposits and I cannot see why the same process as is adopted for the Public Works Department divisions cannot be adopted in the case of local funds and Municipalities also—I quite realize the crop of unadjusted items this would leave for the Accountant-General to add to his list, but it should be possible to so amend the rules that once an estimate is accepted by the Board, and is not exceeded the suspense if any is in the accounts of the district board concerned. What is done now by the Accountant-General with respect to the adjustment of Railway debits on account of freight, or electricity charges to contingencies in the city, can be done equally well with this adjustment, and the one great bugbear of the local body having to advance money to the Public Works Department which scares away work will be removed.

Questions 15 *and* 16—

These are furnished by the Executive Engineer, Kistna Central Division.

Question 17—

Please see Bezwada Superintending Engineer's letter No. 885/W. W-9, dated 3rd May 1924. [Separately printed and circulated to members of the committee with "the Profit and Loss accounts Bezwada Workshops".] It is now 46 per cent made up of 23 per cent on labour for general charges and 23 per cent on the total of the labour, materials and general charges combined, i.e., it is 23 per cent on materials and 51·2 per cent on labour.

Question 18—

Yes. In the case of the Bezwada Shops the following appear to me to be very essential:—

(*a*) A 15" or 18" cupola for dealing with castings up to about 5 cwt. each. This will give about ½ to ¾ ton an hour. One of the type of emergency cupolas supplied by Burn and Company, Calcutta, will quite meet the need. I know of a case where a three cwt. casting was made with this. Two successful examples of its installation are the Chengalvaroya Naicker's Institute at Madras and Mr. Somayya's Foundry at Bezwada. The Saraswati Foundry at Basin in Madras, which I once had the privilege of inspecting, had a similar one working successfully. This will possibly cost about Rs. 800;

(*b*) One 6" Centre American Pattern Lathe with 1¼" hollow spindle as described at page 20 of T. E. Thomson's Catalogue. This with its other equipment will cost about Rs. 1,000;

(*c*) One small shaping machine; and

(*d*) One milling machine at a cost of about Rs. 3,000 for the two. We can then spare one of the slotting machines now at Bezwada and one heavy lathe.

I have already explained in detail the other improvements and alterations that will be required to make the Bezwada Shops efficient in K.C. Division No. 139 S., dated 28th April 1924 [separately printed and circulated to members of the committee with the Profit and Loss accounts, Bezwada Workshops] and I would invite perusal of the same.

General—

The main function of the Bezwada Shops is analagous to that of a running repair shed of Railways, and its existence is an insurance against any serious breakdown of anything mechanical in the whole of the Kistna delta: Something like three or four lakhs of rupees are spent annually on the maintenance works and establishment in the delta, and to say that a few thousands spent at Bezwada Shops to keep things in repair would appear short sighted. Because a few jobs required by the Engineering branch of a Railway such as bed plates of girders, ties, or a truss or two happens to have been made at the Loco repair shops, the whole shops cannot on that account be treated as part of the Engineering Department and be expected to pay its way by the jobs it executes. This—Bezwada Workshops—is primarily an irrigation shop I believe originally erected and furnished out of irrigation funds, some of the mathines being as old as 1885. The mere fact of the shops being utilized to execute works for the Roads and Buildings Branch in the off-season should not for the same reason as above constitute the justification for its being brought on to the list of suspense transactions, being treated as a commercial undertaking, and expected to pay its way. While certainly efficiency should be insisted on and secured, and the utility of the shops extended to the maximum possible with its equipment, its abolition will be like a merchant failing to insure his wares simply because he has been lucky enough to have had no damages for some time.

One other aspect of this is illustrated best by an example. I referred to a Mr. Somayya's Foundry in connexion with the cupola. This man is a mill owner's agent; and he found that the price of spares required was prohibitive. He installed a cupola, couple of lathes and a drilling machine and started manufacture. He finds that he is able to undersell the market by half, and continues to flourish in spite of the very inefficient working of his installation and bad deliveries as to time. And stockists of spares have found it necessary to cut their prices to suit. I also cited the example of the municipality being able to secure very cheap quotations for their requirements when the shops quoted nearly 50 per cent of the rates previously paid by them. The existence of the shops is therefore a favourable factor both for the public and the Government and quasi-Government departments as it helps to stabilize market prices at the lowest possible rates.

One thing I had forgotten to mention so far and that is the necessity for these shops in connexion with the Divi Pumping station. For this all castings and heavy iron work are made at Bezwada. The requirements are sudden and urgent and cannot well be replaced by an outside or distant agency. The absence of such facilities might seriously endanger the successful irrigation and cultivation of the 40,000 odd acres of wet lands in Divi island.

For the reasons aforesaid, I suggest that the shops, both at Bezwada and Dowlaishweram, be retained and, if necessary for the sake of economy, be run as a co-operative concern making it incumbent on the local bodies and the Industries department to place their orders on these shops or at least to give them the first right of quotation or refusal; or if this is not feasible to charge its upkeep to irrigation and navigation and recoup the expenditure so far as possible from the work turned out for other heads of expenditure in the Public Works Department and Local Funds. To attract more work, make the overhead charges 50 per cent of labour only against the present 51·6 per cent and charge only 10 per cent on the stores stock issue rates for the materials utilized, as under the rules these stores rates are practically market rates and are so revalued every six months. In any event the abolition of the shops would appear to me to be very undesirable.

The main reason for the excessive cost of work done in the shops is that we buy the materials from the market at the market rates, carry them on our stock at market rates and, when used on works, charge 23 per cent in addition, which is a net excess over what any commercial firm will charge, and this must be abolished or at least reduced to 10 per cent for stores charges, if we are to quote rates comparable with market rates.

QUESTIONNAIRE.

IV.—PUBLIC WORKS DEPARTMENT SHOPS AT DOWLAISHWERAM.

1. What is the constitution and organization of the shop at present? Give details of staff —Engineers, Foremen, maistris, etc.—with pay and qualifications.

2. For what kind of works is the shop equipped? Give a list of the principal machines, prime-movers, etc., in the shops, the number of forges, number and capacity of cupolas, etc.

3. What are the principal works done in the shops during the past three years?

4. Are works undertaken for other departments or local bodies or for private bodies?

5. Are accounts kept on a commercial basis? How do the profit and loss account of the shop for the past three years stand?

6. Are the plant and staff fully employed throughout the year; or are there slack periods due to seasonal or other causes?

7. Can the shop undertake any more work as at present equipped? If so, what kinds of work can be taken up?

8. What works now done by the shop can be conveniently transferred to the Public Works Department Workshops at Madras without interfering with the exigencies of the local requirements and how can the activities of the shops be then reduced or modified?

9. Can the work now done in the Workshop at Bezwada be undertaken at Dowlaishweram and the Bezwada Workshop closed? If the answer is in the negative, what are the special difficulties in the way?

10. Is there any reason why the construction of new floating plant should not be carried out in Madras?

11. If the activities of the shops were limited to repair works, would it seriously impair the efficiency of the shops?

12. If only repair works were undertaken, could the plant and staff be considerably reduced?

13. What is the extent and nature of superior mechanical engineering supervision and direction given in respect of the works undertaken in the shops?

14. Are any designs prepared by the staff and is any charge levied therefor, if the works are not carried out by the shops?

15. What proportion of the pay of the superior staff is charged to the working of the shops and appears in the profit and loss account under establishment charges?

16. *Dowlaishweram.*—A statement of outturn and profit and loss in the shops for seven years from 1916–17 is appended While there have been profits for the first five years, we find that all of a sudden in the sixth year, 1921–22, there is a deficit of Rs. 8,751, and in the next year 1922–23 a still higher deficit of Rs. 18,614. What are the causes for these variations?

17. What percentage has to be added to the prime cost (i.e., actual cost of labour and materials) of work undertaken to cover overhead charges and thus arrive at the total cost of such work?

18. Is there any possibility of reducing prices or avoiding delay by installation of smaller machines, cupolas, etc.?

19. Is there any standard schedule of rates for work done by piecework or contract in the shops?

DOWLAISHWERAM WORKSHOPS.

ANSWERS TO QUESTIONNAIRE

By W. H. Turner, Assistant Executive Engineer, Public Works Department.

Question 1—

The Workshops are constituted as a subdivision of the Public Works Department, that is to say, they are in the charge of an Assistant Executive Engineer, or an Assistant Engineer as subdivisional officer, and he is responsible under the Executive Engineer, for all work done, and expenditure incurred, in the subdivision.

The "Workshops subdivision" is divided into three sections, the Workshops proper, the Stores section, and the Boat section. The Stores are run generally for the benefit of the Workshops although considerable business is done with other divisions in the supply of small stores. The Boat section is considered to be outside the scope of the present inquiry for the reason that it could be transferred to another subdivision, without in any way affecting the accounts questions presently to be considered.

The general organization of the subdivision will be understood easily from the chart given in Appendix I. The bonds merely show the recognized official channel; it must be understood also that there are certain direct intermediate relationships in order to expedite work in technical questions. Some of these are indicated by red bonds.

A list of the qualifications of the staff is given in Appendix II.

Question 2—

The Workshops seem to have been started about the time of the construction of the Godavari Anicut, since when they have been gradually added to until they now comprise a Machine shop, a Fitter's shop, a Carpenter's shop, a Saw Mill and a Foundry. Some distance from the main body of the Shops there is also a Dry Dock and a Fitter's shed, where certain repairs to the hulls of the floating plant are carried out.

A full list of all prime-movers and machines is given in Appendix III.

It will be seen that the Shops have the general equipment of a small engineering works, and that we can deal with both wood and metal. The capacity of the Shops can be judged from a perusal of the list of principal works given in answer to question 3.

Question 3—

A full list of the principal works done during the last three years is given in Appendix IV. Some reference is also made to the minor works although these are too various to give any adequate list.

Question 4—

Works are undertaken for other Government departments, for local bodies, and for private parties.

The work done for other departments consists principally of repairs to the staff boats of the Salt, Excise, Police and Fisheries, and the repair and maintenance of the steam launch "Thistle" of the Forests. There are also many other petty items.

The Port Officer, Cocanada, also frequently calls on us to do work in connexion with the harbour plant there.

Work is done for private parties according to our capacity and the amount of Government work on hand. We do not canvass for work of this nature, but are willing to oblige as far as possible. Private work, however, forms a very small part of the total done.

Question 5—

Before this question can be answered, the Workshops Committee may be asked to define what they mean by "commercial basis" There are several systems of commercial accounting, one reads, and the committee presumably have some criteria on which they are going to base their judgments.

A commercial undertaking exists solely for the purpose of paying a cash return on the money invested in it. The shareholders receiving the dividends consume a negligible quantity of the product of the undertaking.

Government does not exist to show a profit. A Government undertaking, even, can only be expected to show a profit in the commercial sense if the product of that undertaking is consumed by parties other than Government itself.

The essential fact of these workshops is that they have been established by Government for the manufacture of articles which are consumed by Government. They cannot, therefore, be judged from the same standpoint as a commercial undertaking defined as above. What conceivable reason is there for Government to make a profit at their own expense ?

To introduce, therefore, the idea of " commerce, " with its concomitants of " profit " and " loss, " is, to my mind at any rate, to bring in considerations entirely foreign to the matter in hand.

For lack of a definition by the committee, all that can be said here is that every transaction, in work or material, between these shops and other parties, official or private, is assessed and either paid for or charged for. These figures are dealt with by the method of accounting prescribed by Government in the Public Works Account Code. No one, I think, can quarrel with this method in so far as it prevents defalcations. Whether the same result, as far as these shops are concerned could be more economically obtained is for an expert accountant to decide. Messrs. Fraser & Ross have recently investigated our books and will no doubt make their recommendations, but it is obvious that any radical change will divorce the accounts of this subdivision from the accounts of the rest of the Public Works Department as far as procedure goes, and it is for consideration if this is desirable.

The so-called "Profit and Loss" statement for these shops is now given. Further remarks on this and other accounts matters are made in a special note at the end of these replies.

Year.	Outturn.	Profit.	Loss.
	RS.		RS.
1921–22	1,83,494	...	8,851
1922–23	1,50,463	...	18,614
1923–24	1,38,597	...	23,499

The sudden "loss" which occurred in 1921–22, and which has persisted ever since is due to a special reason which is explained in the note.

Question 6—

The plant and staff are employed throughout the year, but it cannot be said that they work at full capacity. As has already been pointed out our products are consumed by Government, who have not been spending money to the extent that they did, on works which give us employment. Until Government resume their normal expenditure they must be content for us to work uneconomically, because the technical staff is necessary even for the less work which is done.

To afford some guide it may be said that a year of normal expenditure would give us a turn-over of the order of Rs. 1,80,000. The turn-over during 1923–24 was Rs. 1,38,597. It is hoped that the turn-over during the current year will be about Rs. 1,60,000. The turn-over of Rs. 2,35,666 during 1919–20 was excessive.

There is a seasonal rush of work during the time when the delta canals are closed. All the ballacuts of the Godavari Eastern and Western Divisions then come in for repairs and have to be ready to go out again by the time the canals reopen.

Question 7—

Most certainly. Any work within our capacity can be done and the more the better. If the annual turn-over could be sent up to Rs. 2,50,000, or even to Rs. 2,00,000, it would reduce our indirect charges by one-half. (This point will be more fully dealt with in the special note on accounts.)

The kind of work we can do may be judged from the list given in answer to question 3.

Question 8—

These shops exist primarily for the repairs to floating plant and most of our equipment is called into use on this account at some time or other.

If the necessity for these shops is once admitted on this basis, there does not seem any reason to prohibit us from doing other work and so making full use of our plant, since it is obvious that we had better be fully employed all the time of the year.

If the necessity of these shops for the above purpose is not admitted, then there is no reason at all why they should not be closed down and the whole of the plant transferred to the Madras Shops or sold.

Question 9—

I have never seen the Bezwada Shops but I am told they are very small, and that the Dowlaishweram Shops have much more equipment. As far as actual shop work goes, then, we certainly can do all their work. A similar problem to that outlined in the above question would, however, arise. The Bezwada Shops are also used for the repair of floating plant and if they are closed, how is that plant to be repaired?

We certainly could do it here, but it would take a considerable time to tow it through the canals, and the loss of time would be enormous, and the extra expense something to be considered. I do not know if there are any local firms in Bezwada with any machinery to fit them for doing this kind of work, but if there are, to close the Bezwada shops would give them a golden opportunity, of which they would not be slow to take advantage.

Question 10—

There is no reason why new floating plant should not be constructed at Madras except that if these shops are necessary, why not take advantage of their equipment and build new plant here as far as our own requirements go. At least the towing charges from Madras to here would be saved.

Question 11—

It has already been explained that the major portion of the work done here is repair work. This question then needs no further reply.

Question 12—

See the reply to question 8. The plant and staff cannot be considerably reduced. During the closure period the staff is insufficient to cope with the work, the office staff in particular.

Question 13—

The purport of this question is not understood. It should be obvious that the shops do not call for the specialist knowledge required for the production, say, of a Rolls-Royce motor-car.

The whole of the time of the Works Superintendent is spent in the active supervision of the work done; he is a General Foreman.

The whole of the time of the Subdivisional Officer is spent in the inspection and check-measurement of works, and in office work.

Since Government money is in question, the shops must be in the charge of a Gazetted officer, who it held responsible. It has happened that the Subdivisional officer has been without mechanical training, and no doubt will happen again. But if a Subdivisional officer with mechanical training is available, it is obviously to the good if he is in charge of the shops; the superior mechanical engineering knowledge is then available, if called for, to the extent of the capacity of the Subdivisional officer.

Question 14—

Designs are not, as a rule, necessary for the work done here, or if they are called for there is usually some type design available. Certain matters are sometimes referred to us for an opinion however.

If designs were called for by another division of this department, they would be prepared free of charge. If they were called for by a private party, a fee would be charged according to the Code Rules in force.

It is necessary to explain that the time of the Mechanical Draughtsman and the Floating Plant Draughtsman is occupied in estimating the cost of the works indented for by other divisions, and in dealing with the technical correspondence arising therefrom. The cost of works must be notified to and accepted by other divisions before work can be put in hand.

Question 15—

This point is fully dealt with in the special note on the accounts, as it will be more readily understood there.

Question 16—

Until the year 1920–21, the establishment charges were not included in the Profit and Loss Account. This point also is dealt with in the special note.

Question 17—

Also see the special note for a full explanation.

Question 18—

In my opinion, no.

Question 19—

Most certainly. On what basis do the Committee think we carry on?

W. H. TURNER,
Assistant Executive Engineer, Subdivisional Officer, Workshops.

APPENDIX II.

Statement showing the present staff, with pay and qualifications, as called for in Question 1.

P.W.D. WORKSHOPS, DOWLAISHWERAM.

Question 1.—Statement showing the establishment of Engineers, Foremen, Maistris, etc.

Name.	Designation.	Pay. Rs.	Qualifications.
W. H. Turner, B.Sc., A.M.I.M.E.	Assistant Executive Engineer, Subdivisional Officer.	775	Regularly trained as a Mechanical Engineer.
R. DeBras	Workshop Superintendent ...	350	Apprenticed in these shops, twelve years other experience in Calcutta and at sea.
K. Nagisetty	Maistri in charge, Fitters and Smiths Shops and Foundry.	47	Apprenticed in these shops five years, worked ten years as Fitter, then five years as Rice Mill Erector. Maistri for ten years.
Y. Surya Rao ...	Maistri in charge Carpenters Shop.	41	Apprentice five years, Carpenter ten years, Maistri ten years.

Subdivisional Office Establishment.

Designation.	Pay. Rs.	Qualifications.
One head clerk	55	Matriculation with Handwriting test.
One second clerk	35	S.S.L.C.
One mechanical draughtsman ...	57	Trained Bombay Technical Institute.
One floating plant draughtsman ...	50	Trained departmentally (Upper Subordinate.)
One computor and tracer	37	Passed the necessary Departmental Examinations.

Stores Establishment.

	Rs.	
One storekeeper	107½	Matriculation with Handwriting test. Trained in the Stores at Bezwada and here.
One assistant storekeeper	69	Departmental clerk.
One clerk	35	Departmental clerk.

Petty Establishment.

Two peons for the subdivision, Rs. 14 and 13, respectively.
Five peons for the Stores, Rs. 12 each.
Six peons for Workshops Gates (Day and Night), Rs. 12 each.

Establishment attached to Shops.

	Rs.
One timekeeper	43
One assistant timekeeper	38
One timber gumasta	33
One receiver and despatcher ...	25

APPENDIX III.

A list of Prime-movers and machinery equipment as called for in Question 2.

P.W.D. WORKSHOPS, DOWLAISHWERAM.

Question 2.—List of Prime-movers and machinery.

Prime-movers.

I. A single Cylinder Engine, No. 52824 of 1909, by Marshall and Sons, Gainsboro, England, with Boiler and Feed Heater, etc., complete. 90 Brake Horse Power.

The above was installed in or about 1910–11, when extensive additions to the shops were in contemplation. The Saw Mill and Smiths shop were built, but the War put an end to any

further expenditure. This engine can only be run economically at its full load and for our present requirements it is too big. To keep down the power charges, use is made ordinarily of the next item :—

II. A Single Cylinder Portable Engine and Boiler by Marshall and Sons. 14 years old 45 Brake Horse Power.

This is a portable engine of the type ordinarily used in the department. It can drive the Machine shop nicely when there is a fair amount of work and all the machines are required. If only a few machines are required for use, we still further reduce power charges by making use of—

III. A Portable Oil Engine by Hornsby. 16 years old. 16 Brake Horse Power.

IV. There is also a Diesel Engine. 15 years old. 15 Brake Horse Power.

This was in use formerly, but was dismantled when the new Fitters' Shop was built. It is now under repair.

Machines.

Machine shop—
- Lathe. 18″ centres by 18′ 0″ bed. Sliding, surfacing, screw cutting. 50 years old.
- Do. 16″ do. 18′ 0″ gap bed. Do. 11 do.
- Do. 12″ do. 16′ 0″ bed. Do. 50 do.
- Do. 9″ do. 9′ 0″ gap bed. Do. 11 do.
- Do. 8″ do. 8′ 0″ bed. Do. 25 do.
- Do. 6″ do. 6′ 0″ bed. For tool room use. Sliding, surfacing, screw cutting and with milling and grinding attachment. 2 years old.
- Do. 6″ do. 4′–0″ bed. Turret and chasing. 18 years old.
- Slotting machine. 12″ stroke. 11 years old.
- Shaping machine. 12″ stroke. 19 years old.
- Planing machine. 4′–6″ stroke. 11 years old.
- Milling machine. General purpose. 1′ 0″ by 1′ 0″ by 3′ 0 travel. 13 years old.
- Screwing machine. 2″ gas or 1¼″ whitworth. 12 years old. Worn out.
- Spindle for grinding and buffing. 10 years old.
- Drilling machine. 3″ spindle 12″ feed. 3′–0″ table. 12 years old.
- Drilling machine, radial, treble geared, three speed, 3″ spindle, 3′ 0″ arm. 3 years old.
- H.S. drill, 2⅜″ spindle, 1′ 0″ feed. 11 years old.
- H.S. Sensitive drill. 8 years old.
- Do. Do.
- Twist drill grinding machine up to 2″. 7 years old.
- Power hack saw. 12″ blade. 7 years old.

Carpenters' shop—
- Morticing machine. 7″ stroke. 9 years old.
- Do. 4″ stroke. 50 years old.

Saw mill—
- Lathe, pattern maker's, double ended. 10″ centres by 14′ 0″ bed, and 6′ 0″ facing plate. 9 years old.
- Verticle frame saw. 18″ by 18″, any length. 30 years old.
- Do. band saw. 3′ 0″ gap, 3′ 0″ by 3′ 0″ table. 2 years old.
- Horizontal band saw. 3′ 0″ by 3′ 0″ for 25′ 0″ log. 11 years old (with blade sharpener).
- Planing machine, 18″ by 6″. 2 years old.
- Circular saws. Three.

Smiths' shop—
- Steam hammer. 5 cwt. tup, 18″ stroke. 12 years old.
- Shearing and punching machines. Four. About 25 years old.
- Smiths' hearths. Seven.

Foundry—
- Roots blower.
- Foundry cupola.
- Revolving hand crane, one ton.

Dry dock—
- A dry dock to take vessels up to 95′ 0″ by 15′ 0″ by 3′ 0″ draught.
- Allen motor pump, for draining the above.
- A fitters' shed.
- Three cranes, of 3, 10 and 12 tons capacity.

APPENDIX IV.

A list of the principal works done in the Workshops during the last three years.

Note.—In reading this list the reduced expenditure of Government should be remembered. A certain number of petty works are included also with an idea of showing the variety of work undertaken.

Serial number and description of works.	Estimated amount.
	Rs.
1. Renewing the Upper and Lower Lock gates of Masakapally Lock	3,800
2. Renewing the Lower gates of Tallarevu Lock	4,500
3. Renewing the Upper gates of Monjair Lock	1,800
4. Renewing the Upper and Lower gates of Wadapalem Lock	4,000
5. Renewing the Upper and Lower gates of Choppella Lock	3,888
6. Renewing the right leaf of the Intermediate gate of the Tail Lock at Dummagudiem	2,750
7. Renewing the Lock gates of Tail Lock at Dummagudiem	7,520
8. Renewing the lock gates of Samalkota	8,500
9. Renewing the Lower gates of Chintapally	5,100
10. Renewing the Upper gates of Kovur	3,100
11. Renewing the Lower gates of Annampalli	2,500
12. Renewing the Upper Tumble gates of Gopalpur	1,500
13. Renewing the Upper gates of Tapeswaram	1,150
14. Renewing the Upper gates of Tossipudi	3,050
15. Renewing the Central lock gates of Parimalla	4,800
16. Renewing the Lower gates of Head Lock, Dummagudiem	12,200
17. Supplying the teakwood beams for steel lock gates of Dummagudiem	3,200
18. Renewing the shutters of Chinakapawaram head-sluices	715
19. Renewing the shutters of Nakkala outfall sluices of G.W. Dn.	700
20. Renewing the screw gearing shutters of Chinananda head-sluice of G.E. Dn. ...	420
21. Renewing the screw-gearing shutters of Raichur and Chinadevam of G.W. Dn.	410
22. Repairs to Drainage sluices in the river bund at Rajahmundry. Supplying teakwood plugs with all their component parts	1,190
23. Improvements to the Inapur drain. Supplying seven teakwood shutters with beams, locking plates, holding plates, etc., iron bearings, angle iron posts and 42 standards with 552 r.ft. of 1 inch gas pipe	6,000
24. Constructing temporary notches and dams. Supplying 11 sets of yegisi wood shutters with needles, locking bars, etc., complete	570
25. Repairs to Inapur weir and Vrudhagoutami old under tunnel. Supplying teakwood shutters covered with copper sheeting and 3" diameter screw rods of 12' 3"	950
26. Improvements to the under sluice shutters at Dummagudiem. Supplying cast iron grooves, teakwood shutters with screw gearing rods and boxes	2,900
27. Repairs to locks weirs on Gannawaram canal. Supplying screw gearing shutters with all component parts	700
28. Repairs to the bridge at 2/1 of Gopavaram channel. Supplying teakwood scantlings, etc.	424
29. Remodelling the Tossipudi north side channel system. Supplying teakwood shutters with screw rods, etc.	800
30. Fixing permanent stations in Lankas. Supplying 65 S.I.R. posts with number plates	530
31. Special repairs to screw gearing shutters of Adivicodu channel head sluices. Supplying screw gearing rods with female screw boxes, etc.	480
32. Special repairs to Madapadu bridge. Supplying teakwood planks, girders, angle iron stanchions, etc.	1,845
33. Widening the Gopalpur bridge over lock weir. Supplying teakwood planks, girders, etc.	1,800
34. Constructing a foot bridge at 0/23 of Dummagudiem canal. Supplying teakwood posts with cast iron shoes at bottom	600
35. Constructing masonry dam across Chidikedagedda. Supplying teakwood shutters with screw gearing rods, etc.	610
36. Raising the platform of the under sluices at Bobberlanka. Supplying teakwood beams, railings, etc.	1,140
37. Constructing an inlet for Shahapuram drain. Supplying iron flap hinged shutters with all component parts	1,420
38. Supplying a new shutter for the under tunnel at 43/0 Bank Canal Central delta. Supplying a teakwood shutter with component parts	375

Serial number and description of works.	Estimated amount.
	Rs.
39. Improvements to Lolla and Ralli Weir (lock). Providing double shutters to lock weir	10,100
40. Constructing three Kharegat patent automatic shutters to Chingleput division.	3,180
41. Supplying 8 Kharegat shutters and 12 Griffiths patent automatic shutters to Gumsur Anicut	8,740
42. Constructing an iron trough aqueduct to carry Boyabanda Puntha over Polaki channel, supplying a trough of 100 feet with cast iron screw piled posts, angle iron brackets, etc., complete	1,600
43. Extending the field channel of the main channel to irrigate Venkampeta lands. Supplying 10 pipes iron of 1 foot diameter and 3 feet long and 6 of 10 feet long with flanges	270
44. Supplying six gun-metal pinion wheels to the repairs to locks and weirs on Gannavaram canal	108
45. Repairs to Girder bridge at Razolu. Supplying four tow path rollers with complete fittings	270
46. Constructing a bed regulator across Tonkyanalla in S. No. 124 of Pandyajoli. Supplying cast iron Calingula posts	210
47. Making three sets of double purchased gearing	690
48. Improvements to Lolla and Ralli lock weirs. Supplying hexagonal couplings and expanded metel screens 3" mesh and 8' × 3' in sizes	277
49. Annual and special repairs to the following floating plants :— Four steamers. | Eighty-five punts. Seven dredgers. | Twenty-four staff boats. Jolly boats and pinnaces in addition to those of other department, viz., annual repairs to Staff boats of Revenue Department, Salt and Excise Department, Police Department and Forest Department.	
50. Constructing a first-class wooden ferry ballacut for Yendagandi crossing on Yenamaduru drain	1,350
51. Constructing an 18 feet Kistna pattern pinnace to replace No. 2000 G. of G.E. Division	246
52. Constructing a Kistna pattern pinnace to replace No. 2966 G. of G.N. Division	245
53. Constructing a first-class iron ferry ballacut for Kesavaram crossing of G.W. Division	1,430
54. Constructing an 18 feet Kistna pattern pinnace for use in Khukkudakandy section, Ganjam Division	240
55. Constructing a second-class wooden ferry ballacut to ply between 36–4 and 36–5 of K.M.G. Canal	850
56. Constructing a wooden hull second-class staff boat for use of Police Inspector, Gudivada	2,240
57. Repair to ferry ballacuts of G E. Division for 1921–22	12,920
58. Do. do. 1922–23	20,425
59. Do. do. 1923–24	16,850
60. Do. do. 1924–25	10,950
61. Repairs to ferry ballacuts of G.W. Division for 1921–22	12,420
62. Do. do. 1922–23	8,150
63. Do. do. 1923–24	10,180
64. Do. do. 1924–25	11,725
65. Repairs to second-class iron ferry ballacut plying at Garagaparru crossing of G.W. Division	500
66. Repairing the canal iron punt of G.W. Division	870
67. Annual repairs to the two oil engines and centrifugal pumps working in Central Jail, Rajahmundry	565
68. Repairing the boiler and engine mountings, renewing the boiler tubes of the portable engine received back from Inapur Drain	1,200
69. Repairing the boiler and engine mountings, renewing the boiler tubes of the portable engine received back from Dummugudiem	1,630
70. Repairing the boiler and engine mountings, renewing the boiler tubes of the portable engine received back from Guntūr water works	1,670
71. Repairing the steam road roller of Local Fund, Narasapur	1,000
72. Annual repairs to the vertical boilers and portable engines working in work-shops	...
73. Repairing and renewing certain parts of the stone crusher of Koraput division.	200
74. Repairing certain parts of the gear belonging to the Port Officer, Cocanada. Supplying cast iron brackets, etc.	250
75. Repairs to the machinery parts of the Steam Tug 'Godavari'	935

Serial number and description of works.	Estimated amount. Rs.
76. Repairs to certain parts of the Dredger 'Coromandel'. Supplying links, buckets, etc.	1,800
77. Repairs to the machinary of the Allan motor pump	...
78. Repairing the Mortar mill received back from Kundaleswaram weir	380
79. Repairing the Deisel engine Overhauling, boring the cylinder and refitting the engine	900
80. Constructing an additional record room with record racks for the new Collector's office at Cocanada. Supplying sixteen iron record racks	3,920
81. Supplying record racks for Deputy Tahsildar's office at Ichchapuram with gangways	3,300
82. Supplying two iron record racks for the Registrar's office at Berhampur	1,700
83. Supplying closed record racks with bays to the Sub-Registrar's office at Tekkali	2,010
84. Supplying four record racks to the Deputy Collector's office at Kundala, Ganjam division	3,000
85. Improvements to the record racks at Bhadrachalam. Supplying flat iron clamps and bolts	510
86. Constructing an additional Hostel building for the Arts College, Rajahmundry. Supplying teakwood veranda hand railings	1,150
87. Constructing combined Civil and Police Hospital at Bhadrachalam. Supplying teakwood roof timbers	1,644
88. Constructing a dispensary building at Chintur. Supplying teakwood scantlings, batten doors, batten windows, ventilators in two leaves with wire netting, and corrugated sheeting with hook bolts, limpet washers	4,500
89. Constructing a dispensary building at Cherla. Supplying corrugated iron sheeting with limpet washers and hook bolts, ventilators with wire netting, etc.	1,820
90. Extending the servant quarters of the Inspection bungalow at Bhadrachalam. Supplying yegisi roof timbers, etc.	1,400
91. Improvements to the office of the Sub-Assistant Inspector of Schools at Narasapur. Supplying semi-circular batten windows with iron bars and wire netting	900
92. Improvements to the Sub-jail at Russellkonda. Supplying iron cell doors with cast iron locking boxes	1,120
93. Constructing a hospital of eight beds and six single cells in Lunatic Asylum at Waltair. Supplying iron grated doors fitted to wooden frames	360
94. Adding an interview room to the proposed main room of the Sub-jail at Russellkonda. Providing an iron barred partition with a door	450
95. Supplying an iron main gate to the Sub-jail at Russellkonda	700
96. Improvements to the iron gratings in Central Jail, Rajahmundry. Fixing expanded metal sheeting to the windows	3,600
97. Improvements to the female ward, Central Jail at Rajahmundry. Supplying teakwood scantlings and palisade fencing	1,100
98. Supplying steel roof trusses and steel frame for the improvements in Central Jail, Rajahmundry	...
99. Supplying six cage latrines to the District Jail at Berhampur. Supplying iron articles, complete	1,440
100. Constructing a fly-proof kitchen in the District Jail at Berhampur. Supplying plates, iron doors, chimney, angle iron bars, etc., for a complete cooking range	1,000
101. Providing a quick despatch gallows for the District Jail, Berhampur. Supplying all iron articles for complete fitting	770
102. Improvements to the sub-jail kitchen and well in Deputy Tahsildar's office at Parvatipur. Supplying iron grating with a door and locking arrangement to well	68
103. Constructing a small bomb-proof magazine in the brickfields at Vemagiri. Supplying one magazine door and two ventilators	220
104. Improvements to the Armoury of E. C. V. R. at Cocanada. Supplying collapsable iron doors	255
105. Improvements to the rest-house at Bhadrachalam. Supplying sun-shades	720
106. P.C.B. constructing police buildings at Chera-Katheru. Supplying one sword rack with all its parts	52
107. Improvements to the foundry cupola in work-shops. Constructing a cupola in place of the old one, erecting a new water tank and lifting arrangement	2,060
108. Constructing an iron latrine of six seats for the hospital buildings at Venkatapuram. Supplying angle iron posts, iron trusses, corrugated sheets with hook bolts, etc., complete	550

Serial number and description of works.	Estimated amount.
	RS.
109. Repairs to the tram line trucks at Kesavaram quarry	
110. Supplying four brass badges to mile coolies	32
111. Making three steel dies for punching iron and wooden articles with divisional distinguishing marks	12
112. Complete repairs and renewals to the boring set received from Dummagudem.	100
113. Repairing the locking arrangement and making new keys to the travelling cash-chest received from G.E. division	12
114. Repairing the locking arrangement and making new keys to the iron safe of the Training College, Rajahmundry	45
115. Renewing the levers and fulcrum of the weighing machine of G.W. division ...	50
116. Renewing the outer and inner covers and complete painting to the levelling staves received from other division	
117. Overhauling machinery, repairs and attention to various motor-cars and motor cycles	
118. Constructing four teakwood pile drivers	2,470
119. Supplying 200 galvanized padlocks, 2½ inches diameter	720
120. Supplying 200 galvanized buckets, 1½ and 2 gallon capacity	500
121. Repairing 100 feet measuring chain	1
122. Various petty items—	
Supplying teakwood punkas	
Repairing and making new keys to Sparling's brass padlocks.	
Supplying teakwood flagstaff, complete with truck, pulleys, etc.	
Repairing various oil and flare lamps.	
Supplying revolving iron grated doors.	
Supplying corrugated iron railing for rain gauges and other enclosures, etc.	
Supplying a night soil ejector truck to the jail.	
Making screw-gearing boxes of various sizes for stock.	
Making moulds of various sizes for cement concrete pipes.	
Making and painting notice boards for wharves, aqueducts.	
Locks and toll-gates, etc.	

APPENDIX V.

GOVERNMENT WORKSHOPS, DOWLAISHWARAM.

Special note on the accounts at Dowlaishwaram, to be read in conjunction with the answers to Questions 5, 7, 15, 16 and 17.

It is convenient first to consider the preparation of an estimate for work to be done in these shops.

To take a perfectly general case, the total is made up of—

(*a*) Cost of raw material drawn from the stores.
(*b*) Charges for use of machinery.
(*c*) Cost of the labour employed on the work.
(*d*) A centage charge on the cost of the raw material (*a*).
(*e*) A centage charge on the cost of the labour employed (*c*), which is called the "General charge".
(*f*) A centage charge on the total of all the above, which is called the "Indirect charge".

To take an arbitrary example, suppose that (*a*) = 500, (*b*) = 100, (*c*) = 100. Then if the work is to be done for a department of Government other than the Public Works Department or for a private party, the estimate will be—

	RS.
(*a*)	500
Add (*d*) at 10 per cent on (*a*)	50
(*b*)	100
(*c*)	100
Add (*e*) at 20 per cent on (*c*)	20
Total ...	770
Add (*f*) at 30 per cent on the total	231
Grand total ...	1,001

This amount is to be paid by the other department or by the private party.

If the work is for a division of the Public Works Department, the 10 per cent on the stores material will be omited, and so the total becomes—

		Rs.
(*a*)		500
(*b*)		100
(*c*)		100
(*e*)		20
		720
(*f*)	Thirty per cent on the new total	216
	Grand total	936

The above charges of 10 per cent, 20 per cent and 30 per cent are those at present in use. How they are arrived at will be apparent later. For the present the figures may be accepted.

The object of the centage charge on labour is to create a credit in this division, which can be balanced against the debit caused by the expenditure on the pay of the Workshops staff who are directly concerned with the labour employed. These are (1) The Workshops Superintendent, (2) two maistris (3) the gate peons, (4) the time-keeper, (5) the assistant-time-keeper, (6) the timber gumasta, (7) the reciver and despatcher, and (8) other petty charges. The total expenditure on these comes to Rs. 700 per mensem or approximately Rs. 8,400 per annum.

The object of the Indirect charge of 30 per cent on the total is similarly to create a credit to place against the debits incurred by expenditure on—

(1) Establishment charges, i.e., pay of the subdivisional officer and the subdivision office, pay of the storekeeper and the storekeepers's office, and in addition one-third of the pay of the Executive Engineer and the division office staff.

(2) Incidental charges in connexion with the stores.

(3) Interest on the capital cost of buildings, plant and machinery.

(4) Maintenance of buildings, plant and machinery.

(5) Depreciation of buildings, plant and machinery.

The present figure of 30 per cent may be considered as made up of 18 per cent on account of (1) and 12 per cent on account of (2), (3), (4) and (5). The actual monthly payments on account of (1) amount to Rs. 1,900 and the total of all five items is Rs. 3,000 per mensem. This is Rs. 36,000 a year.

To create the necessary credit of Rs. 3,000 it is obvious we have to complete during the month estimates whose totals, not including indirect charges, amount to Rs. 10,000. Adding the indirect charges, our monthly transactions must amount to Rs. 13,000. This is Rs. 1,56,000 for the year.

Now consider what happens if the annual turnover does not amount to this. Suppose that owing to further reduced expenditure on the part of Government, it should only reach Rs. 1,04,000. This figure will be made up of an actual expenditure of Rs. 80,000 on labour, materials and general charges, and by charging 30 per cent on this we shall raise Rs. 24,000 to set against our figure of Rs. 36,000 above. There has thus been a 'loss' on the year's working of Rs. 12,000.

It must be clearly understood also that the receipts for one year are used as a basis for the calculation of the centage charges for the following year. Thus in the example above, the figure Rs. 80,000 would be taken as the actual figure to be spent on labour and materials during the next year, and therefore to produce Rs. 36,000 on this the indirect charge would have to be 45 per cent. Forty-five per cent would be fixed by the Accountant-General as the figure for the indirect charge to be levied on all works executed during that next year.

Conversely (referring to the answer to question 7) if the annual transactions should rise to, say, Rs 2,50,000, the proportion of this spent on labour and materials would be Rs. 1,90,000 and the amount raised on indirect charges at 30 per cent would be Rs. 60,000. This placed against the figure of Rs. 36,000 would show a 'profit' of Rs. 24,000. Again, the figure of Rs. 1,90,000 would be assumed as the transaction for the succeeding year, and, to produce the Rs. 36,000 required for charges, the indirect charges would be lowered from 30 per cent to approximately 19 per cent.

The centage charges on labour or 'general charges' are regulated in a similar way. After the above it is not necessary to go into details.

With particular reference to question 16, the 'loss' in the year 1921–22 is directly due to two causes—

(1) At the end of this year, the establishment charges were increased by the amount of one-third the cost of the divisional staff, including the pay of the Executive Engineer.

(2) The outturn was less than the year before. The effect of this on the profit or loss has been clearly shown above. Similarly a decreasing outturn in the years following has again resulted in a 'loss' and an increase of the indirect charges.

The vicious circle thus created is easy to perceive. The financial stringency, which cannot be helped, causes a reduction in the grant of other divisions and a consequent reduction in the amount of our work. There is then a rise in our centage charges for the following year, and we have to face many protests from the Executive Engineers, who are disinclined to send us work when they see these high centages in the estimates which we prepare and send for their consideration. This tends still further to reduce our outturn and increase our centage charges.

In conclusion, I wish to say that, in my opinion, the centage charges are the tap root of the tree of misconception caused by use of the words 'loss' or 'profit' in our accounts, and I most earnestly suggest to the Committee that they devise some means for their reduction, if not their total abolition.

Considering the peculiar function of the workshops, which has been emphasized in the answer to question 5, the centage charges cannot be justified except by accounts jugglery. Particularly is this true in the *increase* of the 'indirect charges' by one-third the cost of the Division office. The subdivision is at any rate directly concerned with the production of the work, the division manipulate the accounts which we submit to them.

There is nothing in the correspondence section of the Workshops subdivision, which could not be dealt with directly without the necessity of it passing through the Division office. In the accounts, the division is only dealt with by reason of the accounts system used by Government. The extra charge thrown on to works by the above increase of the indirect charges levied is not inherent in the works themselves. Our accounts go ultimately to the Accountant-General, and our correspondence to the Chief Engineer. Why not charge also a proportion of the pay of these officers and various intermediaries, if it is correct accounting to charge our works with a portion of the cost of the division?

In a division concerned entirely with, say, buildings and roads, a small work may be inspected in the same month by the Supervisor, the Subdivisional Officer and the Executive Engineer, all of whom draw travelling allowance for doing so. From the view point of strict accounting the travelling allowance so drawn should be apportioned among the works concerned. Is this done? Is it worth doing? No, it is simpler to supervise the economical spending of the travelling allowance grant rather than undertake the extra paper work which would otherwise be necessary. The expense on travelling allowance is regarded as a necessary unapportioned charge. The cost of the divisional establishment should be regarded in the same way.

If the Workshops committee cannot devise the abolition of the centage charges, the removal of the charge referred to above will materially reduce the 'indirect charge,' and with the approach of normal expenditure, both this and the 'general charge' will fall still further, and the shops show a 'profit'

QUESTIONNAIRE.

V.—COLLEGE OF ENGINEERING SHOPS.

1. What is the constitution and organization of the shop at present? Give details of staff —Engineers, Foremen, maistris, etc., with pay and qualifications.

2. Excluding the works done for instruction purposes, have any works been undertaken during the last three years for any department of Government or for local bodies or private bodies? If so, furnish details.

3. As at present equipped, can the shops undertake to take up job works for Government or other works and do them as effectively as the Public Works Department shops or any engineering firm will do? If so, what nature of work can be undertaken?

4. Can the work now done by the Industrial Workshop be undertaken by this Workshop? If not, what are the objections or lack of facilities?

5. The Industrial Engineer's Workshops as at present organized provide a training ground for such of the subordinate engineering staff of the Department of Industries as are found to be deficient in practical experience and in particular training is imparted to apprentice boring maistris in the manufacture and use of boring tools. If it was decided that the Industrial Engineer's Workshops should be amalgamated with the College Workshops, could such training be provided in the latter?

ENCLOSURE

(i)

V. COLLEGE OF ENGINEERING WORKSHOPS.

ANSWERS TO QUESTIONNAIRE BY THE PRINCIPAL, COLLEGE OF ENGINEERING, MR. C. L. CARTWRIGHT.

1. The constitution of the College workshops is as follows :—

(*a*) Carpenter's shop, size 120′ 0″ × 80′ 0″, fitted with—

Nine students' wood lathes 6½ inches centres.	One band saw.
One wood lathe 7 inches centre with compound slide rest and overhung face plate.	One circular saw.
	One horizontal frame saw.

(*b*) Machine shop, size 180′ 0″ × 80′ 0″, fitted with—

Seventeen lathes.	One power hack saw.
Five drilling machines.	One universal saw sharpening machine.
Two planing machines.	Two tool furnaces
Two milling machines.	One pipe screwing machine.
Three shaping machines.	One press.
Two slotting machines.	Two marking off tables.
Five grinding machines.	One portable crane 5,000 lb.

(*c*) Foundry, size 60′ 0″ × 40′ 0″, fitted with—

One Green's emergency cupola.	One drying oven.
One moulding machine.	

(*d*) Smith shop, size 60′ 0″ × 40′ 0″, fitted with—

Four Smith's hearths with anvils.	One pneumatic power hammer.

Staff.—Details of workshop staff with qualifications and pay are given below :—

Name and designation.	Qualifications.
Mr. A. H. Gilks, Temporary Senior Workshop Instructor for more than 9 years, pay Rs. 460.	Army School, second-class. Technical Course of Instruction, Gun Carriage Factory, Madras. Subject—Wheelwright and Carpenter, *Certificate very superior*, dated 25th April 1904. The above certificate was endorsed *very superior* at the Ordnance College, Woolwhich, England, dated 6th June 1910. Gun Carriage Factory, Madras, from 1904 to 1906 employed as leading hand in charge of saw mills, *certificate satisfactory*, dated 25th June 1906. Ordnance College, England, Woolwich, Technical Course of Instructions as Mechanical Fitter, *certificate superior*, dated 6th June 1910. Aldershot, England, Technical Course of Instructions, Subject motor constructions, certificate *very good*, dated 5th January 1914. Oakes & Co., Madras, Motor mechanic; *certificate satisfactory* includes driving and work on the Ford Car, dated August 1914. Served in Royal Artillery from 1893 to 1914. Employed at Oakes & Motor Works, Madras, from February 1914 to August 1914, pay Rs. 100 per mensem. Employed on the Corporation, Madras, as Driver, motor fire engine, from August 1914 to August 1915, pay Rs. 125 per mensem. From August 1915 employed as Workshop Instructor.
Mr. J. P. Folley, Acting Junior Workshop Instructor for 4 years, pay Rs. 180.	Educated in St. Patricks Orphanage, Adyar. Mechanic, Gun Carriage Factory, for 15 years. Mechanic, Cordite Factory, for 2 years. Head driver, S.S. "Madras", Harbour Works, for 2 years.
Mr. T. Ponnambala Nayakar, Foreman fitter for 10 years, pay Rs. 93¾.	Studied up to second standard. Examination in Engine Driver's Test by the President, Board of Examiners. Experience as fitter in Buckingham Mills for 15 years.
Mr. S. Krishnaswami Nayakar, Foreman carpenter for 7 years, pay Rs. 78.	Studied up to first form. Experience as carpenter for 18 years.
Mr. M. Chinnaswami Mudali, Instrument repairer for 4 years, pay Rs. 52.	Studied up to fourth standard. Experience as mechanic and instrument repairer for 20 years in Messrs. P. Orr and Sons.
Mr. C. Govindarajulu Nayakar, Temporary Machine maistri for 4 years, pay Rs. 52.	Studied up to sixth standard. Experience as fitter and turner in P. Orr and Sons for 18 years.

Name and designation.	Qualifications.
Mr. Ramaswami Nayakar, Temporary Blacksmith maistri for 2½ years, pay Rs 52.	Experience as blacksmith in Royal Artillery, Secunderabad, for 26 years.
Mr. Venkataswami Reddiyar, Temporary Foundry maistri for 2 years, 5 months, pay Rs. 52.	Experience in practical foundry for 20 years, (1) Messrs. Massey & Co., (2) Buckingham Mills, (3) P. T. Lee Chengalvaroya Nayakar's Technical Institute, (4) Parry & Co., and (5) Burn & Co., Calcutta.

The following labourers are also employed :—

Carpentry shop.		*Blacksmith's shop.*	
Carpenters	10	Hammer man	1
Painter	1	Coolie	1
Coolies	2	*Foundry shop.*	
Machine shop.		Moulder	1
Fitters	10	Coolie	1
Turners	3		
Coolies	6		

2. Practically no work has been done for any department of Government, local or private bodies, with the exception of very occasional repairs required to machinery at Government House, Guindy. A charge of cost price plus 33⅓ per cent is sanctioned by Government for such work.

3. The equipment is quite sufficient to enable me to undertake jobs for Government or other works such as turning, fitting machinery, carpentry, sawing timber from logs, pattern making, small castings in cast iron or brass, smithy work, but in order to do so my present staff of workmen would have to be increased. The principal drawback to undertaking outside work is the distance the works are from Madras involving cartage hire to and from Madras.

4. I am of opinion that the work of the Industrial Workshop could be undertaken here, but I agree with the remarks made in the extract from the Industrial Engineer's report sent with your letter No. 18 W.C. of the 17th instant and consider their shop should be retained. The chief advantage of amalgamation would appear to be a saving in power required to drive the machines but this would only be slight as their workshop is small.

5. Suitable training could be provided but in case of transfer it would be necessary to transfer practically all the staff at present employed in the Industrial Engineering shop.

6. The College workshop is electrically driven by three phase A.C. motors, the power being generated in the College power house. The shop is mainly designed for the preliminary training of Engineer and subordinate students. The amount of time the students can devote to practical workshop training is necessarily small as there are so many other subjects for instruction during the College courses. It is absolutely essential, therefore, that the workshop should be on the site of the College buildings and it would not be possible for them to attend any shops in Madras for this purpose even if such shops were available and willing to take them.

I may add that the workshops are at present under my direct supervision.

QUESTIONNAIRE.

VI.—JAIL SHOPS.

1. What is the constitution and organization of the shop at present? Give details of staff —Engineers, Foremen, maistris, etc.—with pay and qualifications.

2. Have any works requiring superior mechanical engineering skill or supervision been undertaken in any of the jail shops?

3. What are the works done at present by convict labour and what by hired labour? Of the latter category what works could be concentrated in one or two jail shops only?

JAIL WORKSHOPS—ANSWERS TO QUESTIONNAIRES.

I

Letter from the Superintendent, Central Jail, Salem, to the Inspector-General of Prisons, dated the 25th November 1924, No. 1630.

With reference to your No. 11005, dated 29th October 1924, I have the honour to forward herewith my suggestions for the improvement of the Blacksmith Workshop.

2. If it were possible to arrange classes for the instruction of the convicts in mechanical drawing, elementary principles of tempering steel, structure of metals, etc., it would help to improve the turnout and finish of our articles. At present they work rather automatically and pick up just what they can.

3. The following machinery is needed to improve the workmanship and finish of the materials manufactured:

(1) One bench drilling machine drilling up to $1\frac{1}{4}''$ diameter.

(2) Hand power blacksmith's shears for cutting steel plate up to $\frac{3}{16}''$.

(3) Hand-driven emery wheel with pulleys for filling (diameter 24", thickness 3", bore 8").

(4) Soldering lamp.

(5) Screw-cutting and turning lathe, large size. All the machinery suggested is for hand power.

4. *Accommodation.*—With a little re-arrangement of the present workshops, room can be found for the machinery suggested.

If the work is to be increased (which means the employment of more men), extra accommodation will be needed either by extending the present smithy workshop or transferring the carpentry to a shed and utilizing the shop for a smithy.

II

Letter from the Superintendent, Central Jail, Salem, to the Inspector-General of Prisons, dated the 25th November 1924, No. G. 1639.

With reference to your Nos. 11252 and 11074, dated the 3rd and 11th November 1924, I have the honour to forward herewith the report as follows:—

Jail shops—Central Jail, Salem.

These fall into three parts—

1. Blacksmith Workshop.
2. Aluminium Workshop.
3. Carpentry.

The first two, viz., Blacksmith and Aluminium, come under the reference of the committee.

JAIL SHOPS—SALEM.

1. BLACKSMITH WORKSHOP.

A. *Constitution and organization.*—This has been classified under the following heads:—

1. Staff.
2. Machinery.
3. Nature of work turned out.
4. To whom supplies are made.
5. Purchase of raw materials.

1. *The staff* consists of (*a*) one paid foreman smithy at Rs. 30 per mensem and (*b*) sixty-six convicts.

(*a*) Foreman—General education	...	III form.
Technical training	...	Nazareth Industrial school, Tinnevelly.
Tests passed ...	...	Elementary and Intermediate Government test in blacksmithy, fitting, oil-engine driving and repairing.

(*b*) The convicts—All belong to the habitual class of criminals. Of these 66, 5 are maistris, who perform the duties of work-overseers in addition to doing ordinary smithy work. Only long-term convicts are selected and no man with less than four years' sentence is entertained.

Labour is divided roughly into three classes—skilled, intermediate and unskilled. At present there are 3 skilled, 16 intermediate and 47 unskilled convicts; most of those in the last two classes can carry out works of a petty nature. Their general education is poor, but every effort is made to improve them by schooling them in the three R.'s. They receive no training in mechanical drawing, tempering of steel, knowledge of metal, etc.

2. *Machinery.*—The following machines are in use at present:—

Drummond lathe, hand-drilling ratchets.

3. *Nature of work turned out.*—All kinds of iron rivetting is carried out. No casting work.

Cell doors, ventilators, undahs, locking boxes, urinals, latrine buckets, post boxes, danger posts, horse-shoes, palisading, link chains, hammers, dust bins, night-soil carts, rat-traps, double and single gates, bolts and nuts, spanners, pick-axes, kodalis, forest axes, water-carts, boxes, truck-ejectors, night-soil destructors, bill-hooks, knives, garden rakes, garden forks, bell chains, stoves, frying pans and fancy iron work.

The work is carried out entirely by convict labour.

4. *To whom supplies are made.*—Jails, Government departments and private orders.

5. *Purchase of raw materials.*—Practically all the raw materials are obtained from Madras and are purchased at the lowest market rate.

B. No works requiring superior mechanical engineering skill or supervision have been undertaken in this shop.

NOTE.—Of the industries detailed on page 2 of G.O. No. 1003 W, dated the 10th September 1924, the following can be executed here :—

Steel roof trusses, stanchions and steel-framed buildings.
Water tanks sheet iron only.
Jail cell doors, lock-boxes and ventilators.
Peons' badges in brass, aluminium or silver seals for wax or ink.

2. ALUMINIUM WORKSHOP.

A. *Constitution and organization.*—This has been classified under the following heads :—

1. Staff.
2. Machinery.
3. Nature of work turned out.
4. To whom supplies are made.
5. Purchase of raw materials.

1. *Staff* consists of (*a*) one paid foreman at Rs. 45 per mensem and
(*b*) Fifty convicts.

(*a*) The foreman ... Technical Training, School of Arts, Madras.

(*b*) The convicts ... All belong to the habitual class of criminals. Of the 50 men employed, 16 men are skilled.

2. *Machinery.*—The following machines are in use at present :—

An emery wheel—which is used for turning and polishing.

3. *Nature of work turned out.*—Eating and drinking vessels, spittoons, bed pans, pewter measures, dekshais, sauce pans, kettles, number boards (motor), ladles, double ounce measures, milk cans, pus bowls, rice moulds and tiffin carriers.

Miscellaneous household articles of all descriptions.

The work is carried out entirely by convict labour.

4. *To whom supplies are made.*—Jails, Government departments, Medical Store Depot, Madras, and private orders.

5. *Purchase of raw materials.*—All are obtained from Madras and at the lowest market rate.

B. No works requiring superior mechanical engineering skill or supervision have been undertaken in this shop.

GOVERNMENT INDUSTRIAL INSTITUTE, MADURA.

REPLIES TO QUESTIONNAIRE.

BY M.R.Ry. Rao Sahib C. S. RAMACHANDRA AYYAR Avargal, B.A., B.E.,
Superintendent, Industrial Institute, Madura.

In pursuance of G.O. No. 1390, Revenue (Special), dated 29th July 1920, the present Industrial Institute, Madura, was restarted in the latter half of 1920 as a commercial engineering and cabinet-making workshop including as one of its main functions the training of a considerable number of apprentices—20 apprentices are admitted every year—over a period of five years paying them daily wages ranging from 6 annas to Re. 1 per diem. To give effect to the above object the following Executive staff are provided :—

1. Superintendent.
2. Assistant Superintendent.
3. Machine-shop Foreman.
4. Instructor in Mechanical Drawing.
5. Teacher in Manual Training.
6. Instructor in Cabinet-making.
7. Assistant in do.
8. Instructor in smithy.
9. Do. in foundry.
10. Do. in fitting.

At the present day the strength of apprentices is 99 including 11 apprentices undergoing training in motor car driving and the strength of the skilled workmen is 51. This is the first year when the Institute has its usual full strength of apprentices on the rolls. As the function of the Institute is mainly educational, skilled labour will be employed just to the extent and proportion compatible with sound training. The working is being watched to determine the salutary proportion of skilled labour to apprentice labour for properly carrying out the object and the aims of the organization.

The usefulness of the Institute was questioned lately by the Retrenchment Committee who recommended for its abolition. After carefully going through the points raised by the Committee and studying the existing condition of affairs, Government were satisfied that the object of the Institute is secured with tolerable economy and orders have been issued, vide G.O. No. 1284, Development Department, dated 14th July 1924, without accepting the findings of the Retrenchment Committee, that the affairs of the Institute will be reviewed early in 1926

when the first batch of the long-term apprentices would have completed their training. In addition to the aforesaid organization, there is a small establishment for turning out motor drivers by training them for a short term of 6 to 12 months and for repairing motor cars.

II. The Institute is equipped with the following plants :—

1. Cupola—1 ton capacity.
2. One Cupola—2 tons capacity (incomplete).
3. One small Roots blower.
4. Sixteen forges.
5. One saw bench.
6. One bandsaw.
7. Three drilling machines.
8. Two small shaping machines.
9. One slotting machine.
10. One planing machine.
11. Two small milling machines.
12. Two big lathes.
13. Five small lathes.
14. One bandsaw filing machine.
15. One punching and shearing machine.
16. One hydraulic press.

All these are now driven by an old type 7½ h.p. Hornsby oil engine. Some of the machines were installed quite recently and the power available is too small for a normal working load. The normal power requirements being about 14 b.h.p., it is contemplated to install in near future a 15 to 16 b.h.p. oil engine retaining the 7½ h.p. as a stand-bye-set Electrical plant consisting of a 4·4 k.w. dynamo and a small storage battery of a capacity of 100 amperes for lighting about 3 dozen points in the hostel and in the premises of the Institute are in the course of erection. This equipment is also intended to meet the local demand for charging batteries of private motor cars and busses plying in the city. The above plant is expected to operate very shortly. To enable the apprentices obtaining a working knowledge of the common industrial plant with which they will come across after they leave the Institute, a rice hulling plant and a double roller cotton gin are also included in the plant equipment. This plant is set apart, for the time being purely for educational purposes. It is practicable to run these plants at long intervals only and an engine of 31 to 34 b.h.p. is installed which is capable of driving both the workshop machines and the industrial machinery.

III.—The Institute workshops are not working at full capacity during the larger portion of the year owing to the very large fluctuations of orders in the course of the year. Usually at the close of the financial year, the amount of work is large and it is only then the workshops are working in full capacity. During the rest of the year the amount of work available is too small for its capacity. The nature of work which the Institute can handle will be understood on perusing the range covered in paragraph 4.

IV.—(*a*) The following list fairly covers the line wherein Government departments were served by the Institute :—

(1) Manufacture of steel structures such as roof trusses stanchions, troughs, gates, cage latrines, etc.

(2) Plain-iron safes, ladders, mail carts, carpenters' cramps.

(3) Bells, gongs, peons' badges, seals, stamping dies of sorts, hackney carriage plates and badges and various miscellaneous items.

(4) Small castings up to 2 cwts. capacity such as oil engine vaporisers, fire bars, road rammers, etc.

(5) Hospital furnishings such as cots, Fowler's bed, Balken frames, Medicine chests, Milk pans, etc., besides complete repairs to local hospital equipments.

(6) Furniture of all sorts such as office chairs, tables, almirahs, show cases, card index cabinets, doors and windows, ventilators, roofing materials, etc.

(7) In addition to the manufacture of the above, the Institute undertakes repairs of all the above and also of steam-oil, petrol and other portable engines, pumping plants, bicycles, typewriters, levelling instruments, theodolites and other surveying and scientific instruments.

(*b*) The local boards, municipalities, and quasi-government departments go in for a larger share of work at the Institute than the Government departments as the figures in Appendix A for the last four years will indicate. In addition to the items enumerated above for Government departments the following supply for quasi-government institutions are made at the Institute.

Steel windows, steel gates, sluice gates complete with operating gearing, water tanks, counters, carts, hospital and board school furniture of all sorts, such as desks, black boards, back benches, record racks, etc. In the matter of repairs, local boards and municipalities furnish a wider range of work and they are, besides the items, enumerated above for Government departments :—

(1) Repairs to steam and motor road rollers.

(2) Repairs to plants employed in water works, such as meters, pumping engines of all sorts, cocks and sluices.

(*c*) Private orders are more numerous and of a more miscellaneous nature. They are :—

(1) Furniture of all sorts for drawing, dining and bed rooms of private bungalows, banks and club furniture such as side boards, card tables, drawing room chairs, sofas and other upholstery.

(2) Supply of spare parts of small industrial plants such as bearings, pistons, piston rings, gudgeon pins, valves, glands and other fittings.

(3) Supply of bed side lockers, collapsible iron gates, grills of various designs, roof trusses, steel gallery, iron carts, baling press yokes, cash chests.

(4) Thorough overhauling of motor cars including manufactures of such spares as are not procurable in India, painting and upholstery. Pressing cushions, tyres for busses and lorries.

(5) General repairs to minor industrial plants such as oil engines, sugarcane rollers, cotton gins, etc.

Appendix A gives the value of work done under the three headings during the last three years.

V.—The equipment of the workshop has been hitherto found to be fairly sufficient to execute the mechanical and structural engineering requirements of Government and quasi-Government departments and if in future years the quantity and variety of work compel additional equipment, it should certainly be possible to find provision for enlarging the activities. The same remarks will apply in the matter of staff. As the working of the Institute will be reviewed at the end of the official year 1925–26 according to the recent resolution of Government and as some changes will be effected in the light of the then cumulative experience, it is hardly necessary to make any comments regarding equipment and staff at the present moment.

VI.—In the southern districts, I do not think that there is any other organized private commercial engineering workshop of the size and capacity of the Industrial Institute, Madura, that can carry out the requirements of the various Government departments as efficiently, promptly and economically as the Institute at Madura. The aided mission schools can no doubt to some extent make and supply articles of furniture and structural work. None of these schools can individually or collectively admit the wide range and the large quantity of work executed at the Institute. With the existing equipment of plant and machinery and the available strength of staff and pupils, a considerable amount of useful work is being done by way of periodical repairs and renewals to various kinds of engines, pumps, electrical plants, road-rollers, etc., belonging to Government departments, local boards and municipalities and private individuals. The inconvenience and cost of transporting these heavy plants between Madura should alone weigh strongly in favour of getting the work through at Madura. In spite of the above advantage, there should be cases of Government departments in Madura and the adjoining districts placing orders for their requirements elsewhere for reasons best known to themselves and it will be undoubtedly advantageous to the Institute to get much more orders than hitherto which will afford better and larger facilities for the apprentices and to reduce the net cost of training. If I give out instances where some Government departments in the southern districts get themselves supplied elsewhere, I should not only lose the chance of capturing them on future occasions but also slip out some of the standing customers. Nevertheless the position has been improving recently and it is my conviction that in the succeeding years, the Institute will have very little to complain of paucity of orders. The small receipts accruing from transactions with Government departments should be due more to the all-round retrenchment of Government expenditure during the last two or three years than to the diversion of work to the other places.

VII.—The workshops attached to the Institute are being run on a par with other commercial shops with this difference that a considerable proportion of employees are learners. Nevertheless there have been very few legitimate complaints against efficiency or expeditiousness. The cost of manufacturing and repairing articles includes overhead charges and the percentage of such overhead charges is determined by the Superintendent according to the commercial value of the work subject to a *minimum* overhead charge reckoned at 50 per cent of net labour. This discretion is exercised for the reason that the apprentice labour is diluted with skilled labour and that the workshops have to be run for instructional purposes whether the amount and nature of orders on hand justify the incurring of the heavy overhead charges. When, in the fulness of time, the amount of work handled at the Institute is consistent with the organization it may be possible to make a large reduction in the loss now sustained by Government, but it is impossible to conceive that the Institute will ever prove to be a paying proposition.

VIII.—The volume of Government work hitherto entrusted to the Institute is much less than it might be and compare unfavourably with what she is able to secure elsewhere. It is worth exploring why much more Government work cannot go to the Institute; on the contrary the figures show a steady decline in the volume of Government work while the quasi-Government and private jobs are steadily and rapidly increasing. When private jobs are on the increase it does not ensure that sort of training to the apprentices which Government jobs would confer. For several reasons the strain on the staff when a very large number of small private orders are being executed is out of all proportion to the return. Often times the time of the staff and workmen is needlessly wasted which, the public do not and cannot realize, should be paid for. Even when more Government work is coming in, it is desirable that the work is spread uniformly throughout the year.

Appendix A gives the amount of work handled by the Institute during the last four years for (1) Government departments, (2) quasi-Government departments—Local Boards, Municipalities, etc., and (3) private bodies or individuals. A study of the figures will be instructive.

IX. The accounts of the Institute are maintained on a commercial basis. The workshops attached to the Institute are not self-supporting—and are never expected to be—for reasons already outlined. Appendix B furnishes the profit and loss statement for the three preceding years. Government have proposed that the transactions of the Institute should come under Chapter II of the Account Code from 1st April 1925.

X. As things stand at present, 250 per cent of *labour* charges has to be added on to cover the bare overhead charges. Even then the receipts will barely balance the actual expenditure and overhead charges, such as staff pay, depreciation, interest on capital (an assumed figure consistent with the turn-over). The staff and equipment are too large for the turn-over per annum viewed from a commercial standpoint, while it cannot be said so when it is realized that the purpose of the Institute is mainly educational.

APPENDIX A.

Statement showing the value of work executed for the four years mentioned below :—

—	1921-22.	1922-23.	1923-24.	1924-25.
	Rs.	Rs.	Rs.	Rs.
(*a*) Government departments	* 8,450	5,900	5,400	4,000
(*b*) Municipalities and District Boards	4,000	2,000	7,300	9,000
(*c*) Private firms and individuals	13,650	13,300	17,000	21,000
Total ..	26,100	21,200	29,700	34,000

* In 1921-22 orders to the extent of about Rs. 3,000 were executed for the textile section of our department and in the succeeding years practically no orders have been received. This contributes for the fall from Rs. 8,450 in 1921-22 to Rs. 5,400 in 1923-24.

† The figures given for 1924-25 include amounts realizable before 31st March 1925.

APPENDIX B.

GOVERNMENT INDUSTRIAL INSTITUTE, MADURA.

Profit and Loss Account for the year ending 31st March 1922.

	Rs. A. P.	Rs. A. P.
To opening stock of raw materials		28,991 12 10
,, works in progress		6,521 12 10
,, expenditure of the year raw materials		24,499 14 5
Wages		20,399 6 6
Salaries		4,800 0 0
Establishment		8,448 0 0
Clerks and servants		5,707 0 0
Travelling allowances		291 0 0
Rates and taxes		31 0 0
Books		120 0 0
Hospital charges		383 0 0
Repairs to buildings		829 0 0
Postage	165 0 0	
Menials	542 0 0	
Miscellaneous	458 0 0	1,165 0 0
Labour and materials charged to unproductive factory orders as per credit per contra—		
Repairs to furniture		300 8 6
Do. to buildings		2,853 12 1
Stores—General		404 8 0
Do. Tools		466 15 7
Running of Engines		2,305 2 9
Water-supply		427 12 0
Carpentry section		434 8 4
Foundry section		2,261 13 7
Smithy section		1,070 13 9
To Machine shop working expenses		770 9 11
Overhauling and repairing of plant		770 10 0
Motor section		811 1 3
Manual Training section		160 9 2
Drawing class		55 8 4
Hostel		487 8 10
General Service		832 9 9
Training of apprentice wages		1,346 5 1
Other charges—		
Depreciation on plant and machinery		3,725 1 5
Do. Buildings		3,625 0 0
Do. Furniture		307 0 0
Interest		10,227 0 0
Write off unserviceable tools		730 1 4
Total		1,36,536 14 3
To balance		35,918 0 0
,, opening stock of manufactured products (1,793-5-0 plus 606-8-11)		2,399 13 11
,, value of work done for public and for sale per contra		24,421 2 0
,, cost of polishing furniture per contra		21 14 2
Total		62,760 14 1

	Rs. A. P.	Rs. A. P.	Rs. A. P.
By balance of work done on orders from public as per stock of sale			24,421 2 0
By value of work done for workshop and Institute—			
Capital—	Workshop.	Institute.	
Furniture		2,611 9 4	
Buildings	6,904 3 3	2,442 1 10	
Tools	164 10 11		
Plant and Machinery	1,466 10 3	353 6 5	
	8,535 8 5	5,307 1 7	13,842 10 0
Revenue—			
Unproductive work as per details per contra.	11,360 15 2	4,399 13 9	15,760 12 11
Repolishing furniture in sales room			21 14 2
By value of work in progress			1,712 13 11
,, value of raw materials			31,931 11 6
,, Tuition fees			120 0 0
,, cost of running institute as per details per contra less tuition fees			12,807 13 9
,, balance carried down			35,918 0 0
Total			1,36,536 14 8
By sales			26,669 0 1
,, closing stock			2,610 0 10
,, loss carried to balance sheet			33,481 13 2
Total			62,760 14 1

GOVERNMENT INDUSTRIAL INSTITUTE, MADURA.

Profit and Loss Account for the year ending 31st March 1923.

	Rs. A. P.	Rs. A. P.		Rs. A. P.	Rs. A. P.
To Opening stock—			By Value of work done on orders from public		22,618 5 3
Manufactured products	2,740 8 11		,, Capital value of work done to the Institute		7,190 1 0
Work in progress	1,712 13 11		,, Revenues—Unproductive work as per details per contra		17,562 3 3
Raw materials	31,931 11 6		,, Tuition fees from apprentices		156 0 0
		36,385 2 4	,, Closing stock—		
,, Purchases		19,596 8 1	Manufactured stock	4,215 9 10	
,, Wages		26,428 1 7	Work in progress	1,761 11 11	
,, Establishment—			Raw materials	29,902 6 8	
Salaries	6,590 5 0				
Staff expenditure	9,972 12 0		,, Net loss		35,879 12 5
Clerks and servants	5,417 5 0				41,672 4 5
Pay of menials	635 1 3				
		22,615 5 3			
,, Travelling expenses		27 4 0			
,, Rates and taxes		62 7 0			
,, Hospital and hostel charges		503 7 8			
,, Repairs to buildings		1,278 7 4			
,, Postages		180 0 0			
,, Miscellaneous expenses		403 13 10			
,, Labour and materials charged to unproductive factory orders—					
Repairs to furniture	323 1 2				
Repairs to buildings	2,677 7 2				
Stores—General	639 13 8				
Store tools	790 4 6				
Running of engines	1,526 5 1				
Water-supply	274 4 10				
Carpentry section	835 3 9				
Foundry section	3,170 15 6				
Smithy section	1,939 7 10				
Machine shop working expenses and repairing of plant	2,040 13 7				
Motor section	628 4 0				
Manual Training section	171 2 11				
Hostel	649 10 8				
General service	1,045 4 7				
		17,562 3 3			
,, Baddebts written off		35 14 0			
	Total	1,25,078 10 4		Total	1,25,078 10 4

GOVERNMENT INDUSTRIAL INSTITUTE, MADURA.

Profit and Loss Account for the year ending 31*st March* 1924.

	Workshop. Rs. A. P.	Institute. Rs. A. P.	Total. Rs. A. P.
To Opening stock—			
Raw materials	29,902 6 8		
Work in progress	2,510 15 5		
Manufactured products	4,215 9 10		
,, Purchases	14,016 2 2	..	36,628 15 11
,, Wages	13,704 8 3	..	14,046 2 2
,, Establishment—		7,498 14 1	21,203 6 4
Salaries	3,450 9 0	3,456 9 0	6,901 2 0
Staff	10,098 7 4	5,049 3 8	15,147 11 0
,, Travelling expenses	..	368 12 0	368 12 0
,, Hospital and hostel charges	..	589 12 2	589 12 2
,, Postages	149 15 0	74 15 6	224 14 6
,, Miscellaneous expenses	760 6,11	380 8 5	1,140 10 4
,, Labour and materials charged to unproductive factory orders as per credit—			
Repairs to—			
Furniture	12 2 7	12 0 0	24 2 7
Buildings	59 0 3	59 0 3	118 0 6
Plant and machinery	20 11 10	..	20 11 10
,, Power and machine shop—			
Working expenses	2,665 7 6	..	2,665 7 6
,, Carpentry section	209 7 1	..	209 7 1
,, Fitter shop	386 12 0	..	386 12 0
,, Smithy	202 0 7	..	202 0 7
,, Foundry	536 0 4	..	536 0 4
,, Motor shop	693 8 8	..	693 8 8
,, Hostel and hospital charges	..	83 14 9	83 14 9
,, Water-supply	352 11 0	352 11 0	705 6 0
,, General service	274 10 6	549 5 2	823 15 8
,, Rice-hulling account	..	5 5 8	5 5 8
,, Bad debts written off	732 9 9	..	732 9 9
,, Audit fee	500 0 0	..	500 0 0
,, Depreciation—			
Rolling stock	348 12 0		
Plant and machinery	1,773 5 4		
Tools	787 6 7		
Furniture	751 6 0		
		..	3,660 13 11
Total ..	89,145 0 7	18,474 10 8	1,07,619 11 3

	Workshop. Rs. A. P.	Institute. Rs. A. P.	Total. Rs. A. P.
By Value of work done on orders	28,991 5 9	..	28,991 5 9
,, Sales from stock	308 6 8	..	308 6 8
,, Capital value of work done to the Institute	4,052 1 9	..	4,052 1 9
,, Revenue—			
Unproductive wages as per details per contra—	Rs. A. P.		
Workshop	5,412 8 4		
Institute	1,056 15 2		
	6,469 7 6	..	6,469 7 6
,, Closing stock—			
Manufactured stock	3,925 4 0		
Raw materials	25,294 1 5		
Work in progress	4,387 11 1		
	..	..	33,607 0 6
,, Tuition fees	..	529 0 0	529 0 0
,, Miscellaneous receipt	3,631 15 10	..	3,631 15 10
,, Net loss	12,084 10 7	17,945 10 8	29,530 5 3
Total ..	89,145 0 7	18,474 10 8	1,07,619 11 3

Annexure II.

QUESTIONNAIRE.

P. W. STORES, MADRAS.

1. (*a*) What is the book value of the stock as distinct from tools, plant and machinery carried in the Public Works Stores?

(*b*) In arriving at the issue rates of stock articles in the stores is any allowance made for interest on the value of the stock locked up in the stores?

2. Are any stores purchased at Home? If so, what is the annual expenditure on this account?

3. (*a*) Can you state approximately the cost of stores purchased annually in India by the P. W. Stores, for supply to Government departments?

(*b*) Are any centage charges added to the issue rates of articles like paint, etc., purchased in India, and supplied from the Stores?

N.B.—Questions 2 and 3 refer entirely to ironmongers' stores, and not to stores purchased in connexion with tools, plant and machinery.

4. Do you consider it is an advantage for the Superintendent, P. W. Workshops, to act as an intermediary between the firms in India and district officers on whose behalf the purchase of ironmongers' stores, such as paint, door and window fittings, etc., is made?

5. Would it not be more economical, more expeditious and less laborious, if quotations or tenders were called for from local firms for the above articles, as is now done for cement, and orders were placed on them by district officers direct after selecting a suitable firm? It is suggested that the selection of the firms be left to the Superintendent, P. W. Workshops, who is in touch with the markets in Madras.

Letter from W. P. ROBERTS, Esq., M. I. MECH, E., M.I.E (Ind.), General Superintendent, Public Works Workshops and Stores, to the Secretary, Workshops Committee, Public Works Department Offices, Chepauk, dated 10th October 1925, No. W/1730-M.

With reference to your No. Nil, dated 2nd October 1925, enclosing a questionnaire regarding the Public Works Stores, I have the honour to state that it would be difficult without many days labour to give exact figures for Paints and "Ironmongers Stores" as separate from general Engineering Stores, as the various items of house Fittings are distributed under the main headings "*Metals*", "*Building materials*", "*Small stores*", and "*Miscellaneous*" and the ledger for "*Painters Stores*" also includes lubricating oils, greases, kerosine oil, etc., and the total number of different items under these headings runs into many thousands.

Question 1 (*a*).—In reply I attach a statement showing the *total* value under these heads of the balance of stock on hand at the end of each of the past three years, also receipts and issues of Small Stores and Painters Stores for the same period.

The term "Ironmongers Stores" is rather indefinite, as it may be taken to include metals of all sorts, and really does not include paints.

Out of the total of approximately Rs. 1,10,000 of small stores in stock, only about Rs. 12,000 worth consists of house fittings.

Steam, water and other pipes and fittings amount to about Rs. 20,000, and the balance consists of engine fittings, bolts and nuts, rivets, chains, etc.

As for the "*Painters stores*", roughly about 90 per cent are really such, and the balance is lubricants.

Question 1 (*b*).—No allowance for interest on value of stock has been made hitherto. [Please also see reply to 3 (*b*) below.]

Question 2.—The value of all sorts of stores purchased from Home during the past three years was—

	Rs.
1922–23	45,983
1923–24	3,647
1924–25	50,084

The Stores imported in 1922–23 were coal, hard coke, steel joists, coal tar, silicate paint, nuts, M. S. black—hexagonal—tapped, nearly all of which have been purchased locally since that year.

Stores purchased in 1924–25 were mainly steel materials for the Kistna Falling shutters which were constructed in the Public Works Workshops.

Question 3 (*a*).—Statement is enclosed.

Question 3 (*b*).—In the past no addition was made for stores issued for Public Works Department works but 10 per cent was added for issues to other departments and private bodies. In G.O. No. 1203 W., dated 11th August 1925, it has been decided that a percentage should be added on account of handling charges with effect from 1st September 1925 on all issues from the stores. The rate is under correspondence with the Accountant-General.

Questions 4 and 5.—I consider that it is a very great hindrance to the proper performance of his own duties for the General Superintendent, P. W. Workshops, to have personally to attend to every detail of the P. W. Stores work, the greater part of which might well be carried out by a reliable assistant. But on the other hand I consider it is very great advantage

to all officers and particularly so to those in the mufassal, that there is a central supply depot on which they can indent for their requirements, large or small, and which, when the articles are not in stock, will obtain them by local purchase. The latter usually involves calling for quotations and samples if necessary and then inspecting the materials supplied, before they are despatched to their destination, possibly in some very out of the way spot where there is no one except perhaps a very minor subordinate.

6. It is a regrettable fact that a very large proportion of the indenting officers (of all departments) who send requisitions to these stores appear to be quite unable to clearly specify what articles they want, and even if able to do so, most Public Works Department Officers have had a great deal of extra work thrown on them by the recent retrenchments and amalgamation of what were formerly separate charges. As a result, indents from subdivisions are only too often simply countersigned and sent on, as received, to the Public Works Stores, no matter how vaguely worded they may be. It is quite impossible to expect these officers to conduct a lengthy correspondence and call for quotations and samples from a large number of suppliers, for the comparatively small quantities of materials required for various petty works. To place an order without obtaining quotations and obtaining samples, is likely to result in the payment of high rates for articles which may or may not be of good quality.

7. On the other hand, any proposal to attempt to enter into annual contracts for the supply of every kind of article required is quite impracticable for the following reasons :—

(i) The total number of different sorts of articles required is very great.

The Public Works Stores ledgers show something like 9,000 entries of different sorts of articles in stock, yet local enquiries have to be made almost daily for items not available from stock.

(ii) It is quite impossible to make even an approximately accurate forecast of the probable consumption for the next year as the demand varies enormously from year to year. Unless some definite guarantee can be given as to the quantity to be delivered, no responsible firm would contract for the year's supply, as it would not pay them to lay in a large stock which might remain unsold. Also they cannot foretell prices, say, six months ahead, as these fluctuate greatly, not merely on account of variations in the rates of exchange, but also because of changes of market rate in the country of origin.

8. There is undoubtedly a very large total stock of stores available in the local market in Madras, taken as a whole, but it is scattered amongst about a hundred or so different firms and dealers, not one of which could meet the whole demands of the Public Works Department. The standard of commercial morality amongst many of these is very low. Though the Public Works Stores enquiry form requests quotations only for goods available for immediate delivery from stock, and the prices to hold good for a fortnight, a very great number of the tenderers will persist in quoting speculatively for articles which they have not got, but hope to obtain from some one else at a lower rate and make a profit on the deal.

Then, if they are given the order and find that they cannot make a profit on the transaction, they excuse themselves by saying that their stock has "since been sold out," and possibly offer to deliver in 8 to 12 weeks.

9. To eliminate from our list the names of those who do this would leave very few remaining, and would remove a good many of those whose prices are the most favourable and under the circumstances the only thing to do is to call for quotations for stocks available at the time, whenever the demand arises.

10. I may say that the annual contract system has been satisfactorily adopted by the Public Works Stores for a good many years in the case of oils and it has also been adopted for 1925–26 for paints, but not so satisfactorily, as not only the Madras Agents of the various firms manufacturing paints in India, but some of these manufacturers themselves do not seem to hold any considerable stocks, and, as a result, deliveries are often not quickly made, as there is first a delay while the paint is being manufactured, and then it may take two or three weeks more for the consignment to come to Madras from Calcutta, whether by goods train or by sea, though if sailing dates suit, the sea route is often quicker than by rail.

11. In conclusion, I may say that while I consider, and always have maintained, that the general control of both the Public Works Workshops and the Public Works Stores should be in the hands of one and the same officer, I also am convinced that for prompt compliance to indents, and satisfactory quality of materials supplied and work turned out, it is most necessary that he should be provided with one competent and qualified assistant for the Public Works Workshops, and another for the Public Works Stores. The volume of work to be done has increased greatly in the past two years in both stores and workshops, and unless some superior assistance is provided at once, there will be some very serious trouble and break down before long. I believe it is absolutely unprecedented in any part of the world for one officer to be expected to personally direct and superintend the work of a total staff of from 900 to 1,000 hands, with the help of a few subordinates of the foreman type, and at the same time to inspect works in the mufassal and to give detail technical advice to any officer who needs it throughout the whole Presidency.

12. I venture to suggest that the present state of affairs is practically equivalent to attempting to satisfactorily maintain a regiment with no other staff than a Colonel in command, and only six sergeants to help him, and to also expect this Colonel to personally inspect from time to time and report on the condition of a score or so outstations situated several days journey distant from each other and his headquarters

Book value of certain sub-heads of Stock in the Public Works Stores, Madras.

Sub-heads.	Balance on 31st March 1923.	Balance on 31st March 1924.	Balance on 31st March 1925.	Remarks.
	Rs.	Rs.	Rs.	
1. Metals	3,66,303	2,74,405	1,85,304	....
2. Building materials	27,816	26,393	21,050	Includes fencing materials, Sanitary appliances, Coal tar, etc.
3. Small stores	1,30,719	1,23,151	1,10,086	Includes house fittings, bolts and nuts.
4. Painters' Stores	22,331	27,784	26,585	....
5. Miscellaneous	84,073	78,284	66,093	Includes water fittings, packing, leather and chemicals.
Total ..	6,31,242	5,30,017	4,09,118	

Statement showing the Receipts and Issues under Small Stores and Painters' Stores for the past three years.

	1922-23.		1923-24.		1924-25.	
	Receipts.	Issues.	Receipts.	Issues.	Receipts.	Issues.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1. Small stores	36,211	36,602	24,037	34,012	36,308	49,583
2. Painters' Stores	55,195	70,972	82,607	76,062	85,938	87,165

Statement of the Cost of Articles purchased by the Public Works Stores, in India, during the past three years.

Sub-heads.	1922-23.	1923-24.	1924-25.	Remarks.
	Rs.	Rs.	Rs.	
1. Metals	6,502	46,827	1,02,913	
2. Building materials	66	7,274	7,805	
3. Small stores	12,042	..	297	
4. Painters' Stores, and Lubricating oils and Liquid fuel.	40,484	65,918	86,658	
5. Miscellaneous	7,497	11,900	7,682	
Total ..	66,591	1,31,919	2,05,355	

Annexure III.

Extracts from the Industrial Engineer's note to the Retrenchment Committee.

2. With regard to the workshops, I made inquiries from the Director of Industries as to whether commercial accounts could not be kept and the workshops placed on a paying basis, and suggested that the question of the amalgamation of the Public Works Department Workshops and the Industries Workshops should be examined. Mr. Pinto, the Industrial Engineer, has forwarded a note with regard to both the points. His note makes it clear that it is desirable that the Industrial Workshops should be maintained as a separate entity and his statement of profit and loss for the year exhibits a profit of Rs. 2,000. Mr. Pinto's report with the profit and loss statement of the workshops is entered below:—

"I beg to submit below my remarks on the several points noticed by the Retrenchment Secretary in regard to the expenditure on the Engineering section of the Department of Industries.

"2. *Headquarters Engineering Branch.*—The Headquarters Engineering Branch consists of the following officers and staff:—

	Salaries. Rs.
(*a*) Industrial Engineer (who is in charge of the Headquarters Engineering Branch as well as of the District Engineering staff)	9,250
(*b*) Assistant Industrial Engineer	3,600
(*c*) Two supervisors	2,925
(*d*) One draftsman	480
(*e*) Two tracers	840
Total ...	17,095

"The expenditure under the same head during 1921–22 was Rs. 26,445. It will therefore be seen that a reduction of Rs. 9,350 has already been effected during 1922–23 mainly on account of the salary of the Industrial Engineer which has been exactly halved.

"The balance of the budgeted expenditure is spent partly on the purchase of plant such as pumping and power drill engines, drills, etc., and partly on account of the Industries Workshop in paying for material and labour. The latter, as is shown by the balance sheet attached, has been wholly recovered during 1922-23 and forms no charge on the public funds.

"3. I welcome the suggestion of the Retrenchment Secretary that for budget purposes the Industrial Engineer should be shown under two different heads, viz., Workshop and District Engineering.

"4. *Industrial Workshop.*—The Retrenchment Secretary has raised the following questions in regard to the workshop:—

(*a*) That it should be placed on a commercial basis and should be self-supporting;

(*b*) that the question of amalgamation of the Industrial and Public Works Department Workshops should be examined;

(*c*) whether such amalgamation would be feasible and advantageous and result in economy."

"5. The Industrial Workshop has been in existence for the past fifteen years during which time no balance sheet or profit and loss account has ever been drawn up. When I took charge as Industrial Engineer on the 3rd April 1922, I realized that it was necessary and quite possible to run the workshop on a commercial basis. With this end in view, I devoted considerable time to the workshop and within two months of my taking charge I cut the wages bill in half by dispensing with the services of half the number of men employed. In spite of this reduction in labour, the work turned out in the workshop during 1922–23 is more than double that executed during 1921–22. I append a balance sheet which shows that the workshop has been self-supporting during 1922–23.

"An entirely different system of keeping accounts and costing jobs has now been introduced and the workshop is now run on up-to-date commercial lines both in regard to manufacture and in regard to keeping accounts.

"6. During the time when Mr. Chatterton (now Sir Alfred Chatterton) was Director of Industries and before the Industrial Workshop came into being an offer was made to the Public Works Department to undertake mechanical work for the Department of Industries. Mr. Pearce, the then Superintendent of the Public Works Workshops, and Mr. Murray, the Chief Engineer, Public Works Department, declined to undertake the work as it was very small in volume (outturn value Rs. 25,000 as against an outturn of 8 to 10 lakhs of the Public Works Department Workshop) and of a special nature involving an intimate knowledge of the working in the field of the specialist machinery handled by the Department of Industries and because small work of this nature could not be economically undertaken in a large workshop like the one maintained by the Public Works Department and also because they could on no account undertake experimental work.

"Another reason put forth for the refusal was that all requisitions either for repairs or for manufacture of machines or parts would have to wait their turn for execution and that this would not suit the Department of Industries as all their work would be of an urgent nature. It would be as well to explain here why the work of this department is of an urgent nature. Suppose some part of a pumping or drilling plant or other piece of machinery which is hired out by the department breaks down—unless this part is repaired or replaced immediately the department would lose hire during the time the machine was idle and the ryot or small industrialist would lose his crop or the best part of a working season.

"7. Again, experience is being daily gained in the field in regard to the improvement or alteration of various boring and other tools used by the department to suit varying conditions of work. Whenever such tools have to be altered or redesigned several trials have to be made in the first instance in actual manufacture before the tool is perfected. This would not be possible if the Department of Industries had not a workshop of its own; for, how can one department or officer actually handle a machine under conditions varying in the field and another officer or department experiment and evolve a tool or machine with the practical working of which under the particular conditions he is not acquainted.

"8. The Engineering section is the only income-earning branch of the Department of Industries and the income derived from other activities of the Engineering section depends to a very great extent on the workshops. Take the case of compounded installations. These plants are looked after by the department for a nominal annual fee. We now undertake urgent repair and renewal work for these small industrialists and ryots and execute it quickly. The result has been a great increase in the number of compounded installations—by more than 100 per cent during 1922–23—which means a considerable increase in revenue without any increase at all in the expenditure as the same district industrial staff attends to these additional plants. We have executed during the year over Rs. 8,000 worth of these small rush jobs for small and big mills, factories and pumping plant owners. This has not only saved many a ryot his crops and several idle weeks for many a small industrialists but has also increased our revenue by over Rs. 12,000 during the year and it is bound to go on increasing steadily. Work of this nature,

work that is of real benefit to the small man unacquainted with machinery and ignorant of things mechanical, could not be undertaken unless we had a workshop of our own and if this were taken away a considerable portion of the usefulness of the department to the public would cease to exist.

"9. Our workshop is on a very small scale and contains very little machinery of that particular kind and type suited to the manufacture of the small tools and plant that we undertake. In fact so small is it that the carpentry and moulding departments consist of one man apiece. Our blacksmiths' shop is manned by two blacksmiths and the machine shop by two machine men with a coolie to attend the drilling machine. The jobs we have to do are small and urgent and only because our workshop is now organized on a miniature scale just enough to suit our needs that we have been able to make it pay.

"10. Although in most cases the work done at the Industrial Workshop is undertaken at the instance of the department itself, such work is ultimately for the benefit of the ryot and the private factory-owner. In the case of urgent private jobs, I can put departmental work to one side for a little while, to take up a rush job to keep a mufassal mill working through a busy season. These rush jobs, though small, are departmentally very important inasmuch as they enable the department to assist small owners and are as important to us and to the small industrialist or ryot as it is for an Executive Engineer to get his sluice gates done in time to conserve his water-supply.

"If our workshop was done away with, we would be subordinating the interests of the ryot and the industrialist to the exigencies of a colossal department like the Public Works Department. The public we serve are at the mercy of the seasons and delay in attending to their needs will only add to their numerous worries and bring the department itself into disrepute. Expedition is at present the *sine qua non* of the Industrial Workshop and its transfer to the Public Works Department would only result in its total disappearance.

"11. Even if the Public Works Department undertook to execute our work and tried to do it expeditiously it would not only be uneconomical but must result in delay due to correspondence from my subordinates passing through me to the Public Works Department and unnecessary and unsatisfactory paper explanations as to exactly what was wanted. It would be uneconomical because when one of their machines was on a job it would be waste of labour to remove it to make place for a rush job of mine, or if a small casting was required I could do it in a very short time as the capacity of my crucibles is very very small while the Public Works Department cupolas handle tons of stuff at a time and that only at stated intervals.

"12. Every departmental plant before being sent out from the workshop after repairs has to be tested. We have the necessary facilities, viz., a suitably constructed well, etc., and trained staff. If the workshop were transferred to the Public Works Department, facilities for testing plants would have to be provided anew and in addition experienced staff from our department would have to be specially placed at their disposal.

"13. The workshop is also used as a training ground for the subordinate staff of our department. We cannot get trained men and have to take raw recruits and train them in handling departmental machinery and the various improvements that are introduced from time to time. It would be impossible to do this without a special staff who work both in the field and in the workshop. For how can one department train men in their workshop in work which keeps altering from time to time as various conditions are met with and different methods introduced and the working experience of which methods rests with the officers of another department?

"14. A lump sum of money has been annually set aside for experimental work, ever since the Industrial Workshop came into being. Several experiments were successfully carried out during the year under report. For instance my predecessor and the Textile Expert have been experimenting for two years to evolve a sizing machine using hot air instead of steam unfortunately without success. The experiments were continued by me and by making a miniature drying chamber and altering it times out of number after trial in each instance a suitable drying arrangement has been evolved.

"Again Sir P. Tyagaraya Chettiyar has three wells in his lands which collectively supply all the water necessary for irrigation. An engine and pump was installed on one well but the well could not keep the pump supplied for more than a couple of hours. The capital cost involved in putting up engines in the other two wells was considered prohibitive and Sir Tyagaraya appealed to the department to help him. One of our calyx power-drills was altered in the workshops and adapted for horizontal boring and two of the wells were connected with each other at bottom level by this means. A miniature syphon of the height and length required was made and experimented on in the workshops. After suitable alterations it proved a success and a full sized syphon was made connecting the two communicating wells with the third well with the result that all the three wells are now emptied by means of one engine and pump. I could mention half a dozen similar experiments. The income earned by the department on account of these experiments may be inconsiderable but the benefit to the hand-loom weaver and to the ryot has been more than considerable.

"No experimental work would be possible if we had not a workshop of our own and work of this description forms an important portion of the usefulness of the department to the public.

"15. If the Industrial Workshop was handed over to the Public Works Department or merged in the Public Works Workshops no economy would result. They would still want our staff—at least a portion of our machinery facilities for testing would have to be provided. They would want the same power to run the machines and the same space to house them. Experimental work—which is an important part of our usefulness—would have to be given up and our men could not be trained.

"If on the other hand the Public Works Workshops was transferred to the control of the Director of Industries, I consider that it will still be necessary for the Industrial Engineer or for the officer who undertakes the duties that are at present entrusted to the Industrial Engineer to retain the present Industrial Workshop as a separate entity. Our little workshop is in the nature of a railway running shed in its relation to the main railway works—both are essential, both have their individual and separate functions and one is as essential to the running department of the Railway as the other is to the manufacturing department.

"16. I am sure the leather and textile experts would regret very much the transfer or amalgamation of the workshop because a good deal of their work which is of an experimental nature is brought to me and many a day have I spent with Mr. Guthrie and Mr. Amalsad in evolving something to suit their needs.

"17. In conclusion I am convinced that the workshop is a power for good and its amalgamation with the Public Works Department Workshops will only be a retrograde step destroying the utility and prestige of our department and bringing it into unmerited oblivion without on the other hand resulting in any economy in expenditure.

"18. To sum up:

(*a*) Our workshop is a very small one and eminently suited to our particular needs.
(*b*) We can confine it to its present limits.
(*c*) It will not require any capital expenditure for years to come.
(*d*) It is self-supporting and is absolutely no burden on the Public Exchequer.
(*e*) It is run on up-to-date commercial lines.
(*f*) It is essential in order to turn out our work economically and quickly.
(*g*) To train our men.
(*h*) To carry out experimental work.
(*i*) It has an important bearing on the revenue earned by other activities of the Engineering section of the department which would fall very considerably if we had not a workshop of our own.
(*j*) No economy would be effected by amalgamation."

Industrial Workshops Profit and Loss Account, 1922–23.

Capital. (1)	Amount. (2)	Charges. (3)	Receipts. (4)	Amount. (5)
	Rs. A. P.	Rs. A. P.		Rs. A. P.
1. Stock of stores on 31st March 1922.	38,607 12 5	81,729 3 10	Pumping and boring	37,857 9 3
Purchase of stores ending 31st March 1923.	43,121 7 5		Fitting for new workshops and petty repairs.	1,774 6 5
2. Building	65,575 0 0	....	Head office	45 3 0
Depreciation at 2½ per cent.	..	1,639 6 0	Textile Factory	931 5 1
3. Machinery Rs. 27,000 less 5 per cent depreciation for ten years.	13,500 0 0	....	Leather Trade Institute	364 15 2
			Glué Factory	113 3 10
			Calicut Soap Factory	79 0 0
			Fruit Preserving Institute ..	889 15 3
4. Depreciation for one year at 5 per cent.	..	675 0 0	Agricultural Department ..	402 2 0
			Industrial Laboratory	496 14 0
5. Plants—			Sugarcane-crushing station ..	17 0 0
Rs.			Private parties	8,102 2 0
22 h.p. gas engine. 5,749			Stock of stores on hand on 31st March 1923.	61,843 4 9
3 h.p. motor .. 886	6,995 0 0	....		
Goulds pump .. 360				
6. Wages of workmen	..	10,488 0 0		
7. Supervision charges * ..	..	5,505 0 0		
8. Telephone charges	..	275 0 0		
9. Electric charges	..	263 8 0		
Profit	..	2,341 14 11		
	Total ..	1,02,917 0 9		1,02,917 0 9

Details for supervision charges—
Industrial Engineer, one-fifth of Rs. 750 = Rs. 150
Assistant Industrial Engineer, half of Rs. 300=Rs. 150
Supervisor, Rs. 93-12-0
Storekeeper, Rs. 65
} for twelve months.

Annexure IV.

Comparative cost of work executed in Public Works Workshops and by private firms.

It is not possible to prepare a really complete statement of the comparative costs of all the work done in the Public Works Workshops with outside rates, as the latter are unobtainable for the greater part of the work done. All that can be done is to make a general comparison and to give specific instances for the comparatively few instances where outside prices were actually obtained.

2. The most essential works for which the Government Workshops in Madras are needed are—(*a*) the construction of large steel shutters for irrigation works and (*b*) for repairing and maintaining in proper working order the very large amount of machinery normally in use throughout the Presidency, both on construction and repair work and also permanently on irrigation and other works. Both these classes of work fluctuate greatly in their amount, and in order to keep the staff and plant fully employed all the year round is only possible by also undertaking, as far as possible, all the other sorts of mechanical work constantly needed for Government purposes, such as small irrigation sluices, steel work for roof trusses, stanchions and girders for buildings, small bridges, tanks, cast-iron columns, special pipes, etc.

3. The large irrigation shutters under (*a*) cannot be made by any local firm in Madras as they are not equipped with the necessary plant for turning out work of the size and quality required. Until about 15 years ago, most of these large shutters in the north of India and some of those for Madras Presidency were imported from England and were made by Messrs. Ransomes and Rapier. The Periyar escape shutters and emergency head sluice were the last supplied by them for this Presidency. It was found by experience that they could be made so much cheaper here that since then all subsequent ones were made in the Public Works Workshops. Sir Thomas Ward, late Inspector-General of Irrigation, told me that their experience was the same in the north of India. Government installed improved machinery in their Workshops at Amritsar and when the above firm learnt this, they intimated that their standard rates for the shutters hitherto obtained from them would be reduced 33⅓ per cent for any future orders but even so it was found cheaper and more satisfactory to get the work done in the Government Workshops.

4. The only definite quotations recently obtained from Home for large irrigation works is for 3,300 running feet of new 6 feet high falling shutters now under consideration for the Kistna anicut. The Home quotation, dated 25th January, works out to Rs. 2,20,506 landed and put on rails at Madras.

For the same work, if done in the Public Works Workshops, the cost would be Rs. 1,78,000 based on the current market rates of steel in England as advised by last mail, which is £1 per ton *higher* than at the time the firm's tender was made in January. So, their present price would probably be increased accordingly. (The 400 tons of steel plates and angles required for this work would have to be specially imported.)

5. *As regards* (*b*) *machinery repairs*, it is most difficult to make any exact comparison of costs, as each job is different and the cost depends on the quality and finish of the work. In very few cases, is it possible to get a price for an exactly similar job carried out by a local firm? The following are a few instances for which outside prices are available :—

(i) *Work Order No. E*/15.—Valves for a large oil engine were made in these Workshops at a total cost of Rs. 15 each. The price charged by a local firm for similar valves for the same engine was approximately three times as much.

(ii) *Work Order No. G*/1952.—One large connecting rod and 150 cast-iron piston rings 15 inches diameter were made in the Public Works Workshops for the Diesel Engines at the Divi Pumping Station at a cost of Rs. 1,500.

The cost of the same articles, as quoted at the same time by the makers of the engines, would have been Rs. 6,400 (at Rs. 15 to £1) and including freight charges, etc.

(iii) Large numbers of valves and seatings and other parts for these Diesel Engines, such as Air Compressor valves, pistons, cylinders and sundry other parts have been made in these Workshops at costs from a quarter to a half of the Home prices, but it is difficult to pick out the items individually.

(iv) *Work Order No. G*/1502.—Two large rough turned mild steel impeller shafts with solid forged couplings were recently made at the Public Works Workshops for the ex-German dredger now in use at the Cochin Harbour. The total cost was Rs. 700. No local Madras firm would have undertaken this work, and the cost compares very favourably with the Calcutta and Bombay quotations for the forging obtained for item (ii) above.

Work Order No. G/488.—The old turbine at the Government Quinine Factory having worn out, it was replaced by a new Pelton wheel made in the Public Works Workshops, at a cost of Rs. 7,392. The quotations obtained from England for the same article, plus freight, etc., amounted to Rs. 15,525.

6. For the miscellaneous jobs under (*c*) definite quotations from outside firms are only available for a few works. All traceable for the past two years are tabulated in the attached statement and show that except in two instances the Public Works Workshops cost was lower and in these cases the high cost is due to the rate of materials available in stores which were obtained during the war period at high rates.

Serial number.	Work order number and date.	Description of work.	Public Works Workshops.		Average of Firms quotations.
			A.	B.	C.
			Rs.	Rs.	Rs.
1	G-581, 11th April 1921	Supply of 14 special cast iron pipes for Madura Drainage Works.	7,714	..	8,300
2	G-1132, 4th April 1922	Supply of one closed steel record rack 8' × 2' 6" × 10' 7½" and 8' 0" × 2' 6" × 9' 3".	1,398	..	1,900
3	G-1155, 26th April 1922 ..	Supply of 10 Jail cell ventilators to S.P. No. 897.	367	263	370
4	G-1172, 10th May 1922	Supply of one wrought iron ornamental gate to S.P. No. 915.	252	192	234
5	G-1183, 16th May 1922	Supply of two M.S. gates to S.P. No. 14.	243	204	342
6	G-1240, 20th June 1922 ..	Supply of three steel framed roof trusses (24' 0" span).	512	343	369
7	G-1129, 3rd April 1922	Supply of 8 steel framed roof trusses ..	1,210	..	1,519
8	G-1564, 12th April 1923 ..	Supply of 24" flanged cast iron pipe ..	185	..	225

In this statement—

Column A—gives the actual total cost of the work as executed in the Public Works Workshops, with materials at rates issued from Public Works Stores.

Column B—shows what the cost would have been if the Stores issue rates had been on a par with the current market rates for materials, which were war-time stock at high rates.

Column C—is the average except for items 1 and 2, of four separate Madras, Calcutta and Bombay firms tenders for the same work and does not include any provision for railway freight from Bombay or Calcutta which would make these rates considerably higher.

7. *Conclusion.*—From the above it will be seen that under (*a*) irrigation works, etc., and (*b*) repairs and renewals to machinery the costs of work done in the Public Works Workshops is very considerably lower than outside firms and Home prices.

Under (*c*) Miscellaneous, the saving is not so great, but it is necessary to undertake this work in order to level up the fluctuations and unequal incidence of the jobs in hand under the other heads.

W. P. ROBERTS,
General Superintendent, Public Works Workshops and Stores.

Comparative cost of work done in Public Works Workshops and by private firms.

With reference to Mr. Narasimha Ayyangar's demi-official, dated Ootacamund, 10th June 1925, I attach below a copy of a note sent with my U.O. No. W/47-W., dated 17th April 1923, to the Secretary of the Public Works Department Enquiry Committee.

Since this was written the Kistna Shutter work referred to in paragraph 4 has been completed and the saving in cost by constructing the shutters and gear locally has proved even greater than was anticipated.

2. The firm's final quotations, plus freight to Madras, landing charges, etc., were—

	Rs.
For 319 sets of shutters complete with shaft bearings, hydraulic cylinders, piping, etc.	2,56,740
The actual cost of these 319 shutters, as constructed in Public Works Workshops, Madras, including the cost of the portion of the work allotted to Bezwada workshops.	1,77,597
Difference being net saving ..	79,143

Even though the saving has been so great, the Madras-made shutters are of equally good workmanship and finish and are stronger, as heavier sections have been used for many of the parts.

3. Another important irrigation work is now in hand, five sets of radial shutters for the Grand Anicut new scouring sluices.

	Rs.
The same firm's quotation for these including freight, landing charges, etc., amounts to (f.o.r., Madras).	57,300
The Public Works Workshops estimated cost is	39,000
The anticipated saving therefore is	18,300

and there is no reason in view of paragraph 2 above why this expected result will not be achieved.

4. Amongst miscellaneous jobs undertaken during the past twelve months, the following are of interest:—

A Government department obtained a quotation from a local firm amounting to Rupees 1,389-9-0 for 200 pieces of various sorts of spare parts for mowing machines. The work was then sent to the Public Works Workshops, and at current rates the total cost is only Rs. 340.

5. Many thousands of fish-plates for tramway rails have recently been required for works in progress. Tenders were called for and the lowest quotations were 4 annas each for 14 lb. rails and 9 annas for 24 lb. rails. These were considered too high, and exactly similar spare parts were manufactured in the Public Works Workshops, at just under half the tendered rates in each case.

6. The above instances show how great an advantage it is for the Government of Madras to have their own workshops, and in view of the very large amount of work to be done for the irrigation schemes and improvements recently sanctioned and others now under contemplation, it is advisable not only to maintain but to improve the Public Works Workshops to enable them to cope with the work to be done.

W. P. ROBERTS,
General Superintendent, Public Works Workshops and Stores.

To the Secretary, Workshops Committee, Chief Engineer's office, Chepauk, Madras (u.o.).

Annexure V.

Mr. Howley's note, dated 3rd November 1918.

The abolition of the Dowlaishwaram and Bezwada Workshops is entirely out of the question; the only point for consideration is the possibility of their transfer to private agency. These two workshops are required more especially in connexion with *the repairs and maintenance of the floating plant* of the Godavari and Kistna delta systems.

2. The present floating plant of the *Godavari delta system* is as follows:—

Steamers	3 (exclusive of one transferred to the Marine Department and a second sent to Mesopotamia both of which will have to be replaced at the earliest possible date).
Motor launch	1
Steam dredgers	8 (several more will be obtained after the war).
Dredge punts	7
Steel punts and barges	57
Wooden flats	11
Staff boats	22
Pinnaces and inspection navas	38
Jolly boats	13

also a large number of steel canal ferry boats (the exact number is not readily available) which come in annually to the shops for overhaul, repairs and painting.

3. The Kistna delta system has the following floating plant:—

Steamers	2
Motor launch	1
Steam dredgers	3 (additional ones will be obtained after the war).
Steel punts and barges	71
Paddle boats	2
Staff boats	17
Pinnaces and inspection navas	39
Steel canal ferry boats	159

4. The annual repairs to floating plant have as a rule, to be rushed through during a few months of the dry season, and any delay in completing these repairs would be disastrous. None of the work of course can be sent away to workshops in Madras or elsewhere. This is also the case with regard to urgent repairs to the gearings of locks or sluices, to steel lock gates, anicut shutters, or shutters of head or undersluices. It is therefore absolutely necessary to maintain well equipped shops, both at Dowlaishwaram and at Bezwada, manned by trained staffs able to deal with steamers, dredgers, motor launches, steam and oil engines, pumps, heavy plant and machinery, etc. No engineering firm or contractor able to deal with a variety of work of this kind, and willing to guarantee under penalty the maintenance of a competent staff and of suitable machinery and plant would be likely to take over either of these shops, for a lengthy period, except on very onerous terms. The efficient maintenance of the shops, either by Government or by private agency, is, as already mentioned, absolutely essential even from the point of irrigation alone.

* * * *

Mr. Howley's note, dated 28th August 1919.

* * * * * *

The fact remains that the shops are largely required for the effective repair and maintenance of construction plant, such as portable engines, pumps, winches, drills, tramway plant, etc., and for work in connexion with the irrigation systems (shutters, gearings, etc.). A great deal of heavy mechanical work will be required in connexion with Cauvery project, which we hope will shortly be sanctioned. The use of mechanical construction plant is bound to increase rapidly in the near future, with the increasing labour difficulty; and it would be most inconvenient, at the very least, for the department to have no suitable workshops to fall back upon, other than those of private firms. The present time thus seems to be a very unsuitable one for giving up the Madras shops.

* * * * * *

Annexure VI.

Letter from the Secretary to the Government of Madras, Public Works Department (General and Irrigation), to the Secretary to the Government of India, Public Works Department, No. 1331 W., dated 16th October 1919.

* * * * * *

4. As regards the workshops, I am to state that there are three Government workshops in this Presidency, namely at Dowlaishwaram, Bezwada and Madras. The workshops at Dowlaishwaram and Bezwada are required principally in connexion with the repairs and maintenance of the floating plant of the Godavari and Kistna delta systems, where any delay in completing the repairs which must as a rule be confined to the few months of the dry season, would be disastrous. None of this work can be sent away to workshops in Madras or elsewhere. This is also the case with regard to urgent repairs to the gearings of locks or sluices, to steel lock gates, anicut shutters or shutters of head or undersluices. It is therefore absolutely necessary to maintain well-equipped shops at Dowlaishwaram and at Bezwada, manned by trained staff able to deal with all kinds of mechanical work. No engineering firm or contractor would be able to deal with a variety of work of this kind, or willing to guarantee under penalty the maintenance of a competent staff and of suitable machinery and plant, except on very onerous terms. The efficient maintenance of these shops is essential.

5. As regards the Public Works Workshops at Madras the Local Government are strongly of opinion that they should be retained at least for some years to come. Apart from the largely increased expenditure that would result if the shops were abolished, before more effective competition arises among engineering firms in Madras, there remains the fact that the workshops are required for the effective repair and maintenance of construction plant (shutters, gearings, etc.), and especially for the prospective heavy mechanical work in connexion with the proposed Cauvery Project.

* * * * * *

Order—No. 618 W., dated 12th June 1926.

In G.O. No. 1003 W., dated 10th September 1924, a Committee consisting of officials and non-officials was appointed

(i) to examine the nature of the work done in the workshops attached to the several departments of Government and to advise how far the work in the different workshops can be co-ordinated without unduly interfering with special departmental needs, to avoid waste of labour and money;

(ii) to define the work that can be carried out efficiently in each of the workshops, which it is considered necessary to retain;

(iii) to examine how the Public Works Workshops, Madras, can be systematized; and

(iv) to examine why the Public Works Workshops, Madras, are not able to carry out small works, such as repairs to bicycles, at the rate at which private firms can do them.

2. The Committee has submitted an unanimous report and recommends

(1) That the workshops at the College of Engineering, Guindy, should be retained purely as an educational concern and that its plant and machinery should be reduced to the minimum required for instructional purposes.

(2) That the jail workshops should remain to provide instruction and employment for convicts; but should not be expanded by the addition of plant and machinery and the employment of skilled labour, so as to enter into competition with other institutions.

(3) That before closing the Industrial Institute at Madura as proposed by the Retrenchment Committee further enquiry should be made to ascertain why it is working at a loss.

(4) That the Industrial Workshops at Madras should be continued, in view of the fact that it does a lot of private jobs and works at a profit, and also because its amalgamation with the Public Works Workshops at Madras would not result in any reduction of staff and running charges, but would only complicate the accounts and interfere with the special departmental needs of the Industries Department.

(5) That the Public Works Workshops at Bezwada and Dowlaishwaram are essential for special work in regard to the repair and manufacture of floating plant and the gearings, gates and shutters of locks, anicuts and sluices of the delta systems which they respectively serve.

(6) That the Public Works Workshops at Madras are indispensable and economical, and should remain as the chief Government workshops in the Presidency and should be fully equipped and kept up-to-date, and that every department of Government on the look-out for workshops manufactures should be required to make enquiries at these shops before placing their orders on outside firms.

(7) That in the Public Works Workshops and Stores at Madras, the Stores section should be kept separate from the purely mechanical or workshops section, and the stores placed under the direct charge of a Superintendent who will be subject to the general control of the General Superintendent, Public Works Workshops and Stores.

(8) That the interest and loss on heavy plant and machinery lying idle in the Public Works Stores at Madras should be borne by the Department as a whole and not debited to the working of the stores.

(9) That the proposals of Messrs. Fraser & Ross, Chartered Accountants, which aim at simplifying the system of accounts in the Public Works Workshops at Madras and placing it on a commercial basis may be introduced.

(10) That the General Superintendent, Public Works Workshops and Stores, Madras, should have an Assistant, who should be a fully qualified Mechanical Engineer, capable of rising to the post of General Superintendent and the heads of the Bezwada and Dowlaishwaram workshops should also be fully qualified Mechanical Engineers borne on the same cadre.

(11) That the plant at the Public Works Workshops, Madras, should be electrified.

(12) That new drilling machines and hammers should be provided for the Madras Workshops.

(13) That a new lay out for the Madras Workshops for which the General Superintendent is preparing an estimate, should be carried out when funds are available.

(14) Lastly, the Committee explains why private firms can do petty jobs more cheaply than the workshops.

3. The Government now pass the following orders on the Committee's recommendations:—

Recommendation (1).—The Government agree with the Committee that the workshops at the College of Engineering should be retained as a purely educational concern. As regards the staff and equipment, the Director of Public Instruction, considers that no reduction can be made, but the Government desire that the

matter should be further considered with special reference to the Committee's remark that only master workmen should be retained, the actual manual work being done by the students themselves.

Recommendations (2), (4), (5), (6), (7) *and* (10).—The Committee's suggestions are accepted. The workshops at Dowlaishwaram and Bezwada will be retained for the present.

As for the appointment of an Assistant Superintendent for the Public Works Workshops, Madras, there is a sanctioned post on a pay of Rs. 400–40–800, and a fully qualified Mechanical Engineer has been appointed thereto in G.O. No. 337 W., dated 20th March 1926.

The Government accept the Committee's suggestion to create an appointment of Superintendent, Public Works Stores, on a salary of Rs. 300–500.

The Chief Engineer is requested to submit proposals to give effect to the Committee's recommendation that the officers in charge of the Bezwada and Dowlaishwaram Workshops should be fully-qualified Mechanical Engineers borne on the same cadre as the Assistant Superintendent, Public Works Workshops, Madras.

Recommendations (3), (8) *and* (9).—Orders on these will be issued separately.

Recommendation (11).—In G.O. No. 216 W., dated 18th February 1926, the Government have sanctioned an expenditure of Rs. 13,700 on the provision of electric motors for the Public Works Workshops, Madras.

Recommendation (12).—The Chief Engineer is requested to submit separately proposals for the supply of the new drilling machines and hammers required for the Madras Workshops.

Recommendation (13).—The estimate for the proposed new lay-out for the Madras Workshops is awaited.

Recommendation (14).—Having regard to the orders issued in G.O. No. 765, Finance, dated 21st October 1924, the Government agree with the Committee that it is unnecessary to pursue the matter further.

4. In conclusion the Government desire to thank the Chairman and other members of the Committee for the concise and definite report which they have presented.

(By order of the Government, Ministry of Public Works)

S. H. SLATER,
Secretary to Government.

To C. B. Connell, Esq., Executive Engineer, North Presidency division.
„ the Chief Engineer (Roads and Buildings).
„ the Chief Engineer (Irrigation).
„ the Accountant-General (through Finance).
„ the Development Department.
„ the Law (General) Department.
„ the Law (Education) Department.
„ M.R.Ry. Bhaskara Raja Rajeswara Setupati *alias* Muthuramalinga Setupathi Avargal, Raja of Ramnad, M.L.C.
„ T. M. Ross, Esq., M.L.C., Chairman, Chamber of Commerce.
„ M.R.Ry. Diwan Bahadur K. Suryanarayanamurti Nayudu Garu, M.L.C., Cocanada.
„ Lieut. Col. G. W. Maconachie, I.M.S., Superintendent of Prisons, Madras [through the Law (General) Department].
„ L. B. Green, Esq., Deputy Director of Industries (through the Development Department).
„ R. F. Stoney, Esq., Chief Engineer (Irrigation).

A. P. F. VI. G1]

SUBJECT.....

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.....

Issue Memorandum

Section J & C. No.

File No. 362-No.

Serial No. 18

Diary No. of letter replied to.....

No. D 9691

General and Revenue Secretariat

( )

the *192*

To The Comptr.

Date of issue 26/4/28

Sir

Signed by H. E. M. Jacob

W. Fin.

In connection with ~~with~~ .

with reference to your no. D. Note No. 766 | 2AD dated 26th April 1928 stating that the loss on the working of the C.D.W. till the end of June 1927 viz. Rs 93,437-3-3 has been adjusted in accounts, I am directed to state that the Govt. had reported that the loss incurred during the latter half of the year 1926-27 amounted to Rs 3 8 46-15-10 (pie) only. ~~to enquire whether this amount~~

List of enclosures.....

Copied by .....

Examined by .....

over

WD0325—GPB—30,000—26-5-27

has also been adjusted in accounts.

It is the intention of Govt to write off certain bad
The loss sustained by the concern up
to the end of the year 1926-27.

Sd/-

Mr. V. [illegible] 26/5

He now reports that the actual loss for the second half of 26-27 was Rs 3671-9-0, and that there was a loss of Rs 8151-1-11 in the working of the concern during 27-28, and that the total loss to end of 27-28, according to the accounts of the concern was Rs 97823-14-2. I am to request that information may be furnished on the following points.

(1) The actual loss incurred during the second half of the year 26-27, and how far this has been adjusted in the Govt accounts.

(2) The amount of loss incurred during 27-28, and whether this has also been adjusted in the Govt-a/cs.

(3) What is the total amount of loss actually written off in the Govt-a/cs to end of 1927-28 and how the difference between the figure in the workshop accounts and your figures is accounted for.

The information may be furnished very early.

Sd/- [illegible]
for Secy

Fair draft

GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE

General and Revenue Secretariat

No. D 9691 / I&C 361-28-18

Bangalore, Dated, 24/12/28

From

N. RAMA RAO, Esq., B. A., B. L.,
Secretary to the Government of His Highness the Maharaja of Mysore,
Development Departments.

To

S. Shamanna, Esq., B.A.,
Comptroller to Government.

Sir,

With reference to your Unofficial Note No.766/I.A.D. dated 26th April 1928 stating that the loss on the working of the Central Industrial Workshop till the end of June 1927 viz., Rs.93,437-3-3 has been adjusted in accounts, I am directed to state that the Director had reported that the loss incurred during the latter half of the year 1926-27 amounted to Rs.3846-15-10 He now reports that the actual loss for the second half year of 26-27 was Rs.3571-9-0, and that there was a loss of Rs.815-1-11 in the working of the concern during 1927-28, and that thetotal loss to end of 1927-28, according to the accounts of the workshop was Rs.97,823-14-2. I am to request that information may be furnished on the following points: -

(1) The actual loss incurred during the second half of the year 1926-27, and whether this has been adjusted in the Government accounts.

(2) The amount of loss incurred during 1927-28, and whether also this has/been adjusted in the Government accounts.

(3) What is the total amount of loss actually written off in the Government accounts to end of 1927-28, and how the difference between the figure as per workshop accounts and your figures is accounted for.

p.t.o.

The information may be furnished very early.

I have the honour to be,

Sir,

Your most obedient servant,

Secretary to Government,
Development Departments.

ACH.2. 24/2.

Information required by I Member	para	D/W's. replies
para 111 Whether the loss incurred by the C.D.W. during the half year ended June 1926-27 has been adjusted in accounts.		A difft. h comptt. is put up yes:
112 Whether the diffce between the book Value & realisable value of unserviceable articles has been included in the total loss proposed to be written off	122	yes.
Whether the unserviceable articles have been disposed of		The bulk of the articles has not been sold.
Whether the amount due to the P.W.D. towards rent has been waived.		The old rent account has been closed by write off of a portion & payment of the balance to P.W.D.
115 details about the class of apprentices to be trained at the workshop; Scholarships to be given to them etc.		The Scheme proposed by the Govt. of Ore for the training of artisans has been referred to the Board of Edn for opinion as desired by the I Member. (May be taken up separately - ER)
Whether retrenchments under Salaried Staff. and work establishment have been effected as originally proposed.		Apart from the saving resulting from the abolition of the Military workshop, a saving of Rs 1513/- p.m. has been effected as a result of the amalgamation as agst. a saving of Rs 1000/- originally anticipated.
What is the cost of transferring the machinery of the Electrical Workshop to the C.D.W.		Rs 1219-15-0. This has been met from the Savings of the Electrical dept. both

Whether the establishment Originally employed in the Military Workshop has been reduced as proposed.

The Mily workshop as employed Staff costing Rs 442/- p.m. The whole cott. has been discharged except two workmen on wages of Rs 61-15-0 p.m, Since employed in the C.D.D.

4 3 30

OFFICE OF THE COMPTROLLER TO THE GOVERNMENT
OF HIS HIGHNESS THE MAHARAJA OF MYSORE,

No. 848 IAD

Bangalore, dated 17th March 1930.

From

S. SHAMANNA, Esq., B.A.
Comptroller to the Government of
His Highness the Maharaja of Mysore,
Bangalore.

20 MAR 1930

To

N. Rama Rao, Esq., B.A., B.L.,
Secretary to the Government of Mysore.
Development Departments, Bangalore

Sir,

With reference to your letter No.D.9691/I&C.362-26-18 of 24th February 1930 regarding the amount of losses adjusted in the accounts of the Central Industrial Workshop during the years 1926-27 and 1927 I have the honor to state that the difference of Rs275-6-10 for the year 1926-27 (i.e., between Rs3,846-15-10 and Rs3,571-9-0) is due to certain adjustments having been effected after audit. The original figure of Rs3,846-15-10 intimated by the Director represents the amount of loss arrived at as per the provisional Balance Sheet, while the latter is the final figure arrived at after audit

2. Since the final figures will not be ready before the accounts for the year are closed, adjustments are made in Government Accounts on the basis of the provisional Balance Sheets sent by the Director. Hence there will always be some difference between the amounts actually adjusted in the Government Accounts of the year and the figures arrived at finally after audit. Such differences will be adjusted in the following years accounts.

3. With regard to your queries Nos.1, 2 and 3, I have to state as follows:-

(1) The actual loss incurred during the second half of the year 1926-27 is Rs3,571-9-0, which was adjusted partly in the accounts for 1926-27 and partly in those for 1927-28

(2) The loss for 1927-28 was Rs815-1-11 which was similarly adjusted in the accounts for 1927-28 and 1928-29.

(3) The total loss adjusted in Government Accounts from the second

half

half of 1926-27 to end of 1927-28 (inclusive of final adjustment of June 1928 effected in the accounts for 1928-29) amounts to Rs.97,823-14-2 as stated by the Director. The apparent difference between the figures of the department and those of this office accounts is due to the reasons specified in para 2 supra.

I have the honor to be,
Sir,
Your most obedient servant,

J. Thomson
Comptroller.

MSR

D 1353

GEN. & REV. SECRETARIAT
3 OCT. 1931
DEVELOPMENT BRANCH

Telegraphic Address.—"INDUSCOM."

GOVERNMENT OF MYSORE.

DEPARTMENT OF INDUSTRIES AND COMMERCE.

In reply please refer to
No D2-1242/29-30
Encl, 2

OFFICE OF THE DIRECTOR,

Dated, Bangalore, 30th Septr. *193* 1.
2-10-1931.

FROM

N. RAMA RAO, Esq., B.A., B.L.,
Director of Industries and Commerce in Mysore,
Bangalore, (India.)

To

B. T. Kesaviengar, Esq., B.A.,
Secretary to the Government of Mysore,
Development Department, Bangalore.

SIR,

With reference to your letter No. D. 1462/I & C 326-26-20 dated 9th Septr. 1931 observing that the depreciation in the value of the machinery transferred from the Electrical Workshop to the Central Industrial Workshop and included in the assets of the latter, has to be borne by the Electrical Department and asking me to settle this question in consultation with the Chief Electrical Engineer, I have the honor to submit for the information of Government, a copy of letter No. 67120 dated the 17th Septr. 1931, received from the Chief Electrical Engineer demanding payment in cash by this Department, of the value of the machinery transferred to the Central Industrial Workshop and also the hire charges amounting to Rs 3,074/- on that portion of the machinery which was subsequently proposed by him to be taken back for use in his Department and also a copy of my reply to the Chief Electrical Engineer, sent to-day. As the Chief Electrical Engineer has been repeatedly urging for the payment of the value of the machinery transferred and also the hire charges, I request that formal orders for the adjustment of the value of the machinery in the books of the late Electrical Workshops may be issued and the Chief Electrical Engineer also informed that no cash payment is required to be made by this Department.

I shall submit my proposals in regard to the method of costing and the centage to be charged on work orders from the Electrical and other Departments, called for in para 2 of your letter, separately for the consideration and orders of Government.

I have the honor to be,
Sir,
Your most obedient servant,

N. Rama Rao
Director.

USC)3

Copy of letter No. 67120 dated the 17th Septr. 1931 from the Chief Electrical Engineer to the Government of Mysore, Banga -lore, to the Director of Industries and Commerce in Mysore, Bangalore.

Machinery and tools transferred to the Amalgamated Work shop

With reference to your letter No. D-1242/29-30 dated 28th June 1931, I have the honor to state that I am not aware of - any Government order stating that no payment was contemplated in respect of the machinery transferred from the Electrical to the Central Industrial Workshop, but, I would on the other hand invite your kind attention to para 3 of your D. 400/27-28 dated 3-3-1928 to Secretary to Government, Development Department, - where it is definitely agreed to by you, that

> "The Electrical Department should be given credit for the value of the materials belonging to it and trans -ferred to the amalgamated unit".

Under these circumstances, I would request you to arrange to make an early remittance of Rs 11,728-3-9 to this Department.

2. Regarding the list of materials stated to be not required for use in your workshop, as per list attached to my D. O. No. 3501 dated 12-8-1930, I would also request you to remit to this office early, 15% hire charges, amounting to Rs 3,074/- as required under Art. 368 of the Mysore Public Works Account Code, as already claim -ed in my letter above referred to. The levy of the hire cannot be waived, as there are no orders of Government specially permitting the same in the case of the Central Industrial Workshop.

3. In your letter No. D. 1242/29-30 dated 25th May 1931, it was - stated that steps had been taken to arrange for the sale of the materials referred to in para 2 above and I will be glad to know from you, whether the sale has actually been effected and if so, what the amount realised is, and when that amount will be credited to the Electrical Department.

4. An early remittance of the amounts due to this Department from yours referred to in paras 1, 2 and 3 above, may kindly be made.

" COPY "

Director.

TELEGRAPHIC ADDRESS:—"INDUSCOM."

GOVERNMENT OF MYSORE

DEPARTMENT OF INDUSTRIES AND COMMERCE.

In reply please refer to D2-1242/29-30
No.
Encl.

OFFICE OF THE DIRECTOR,
30th Septr 1
Dated, Bangalore,.....193

FROM

N. RAMA RAO, Esq., B.A., —.—.,
C. RANGANATHA RAO SAHIB, Esq., B.A., B.L.,
Director of Industries and Commerce in Mysore,
(Bangalore, India.)

To

The Chief Electrical Engineer
to the Government of Mysore,
Bangalore.

SIR,

With reference to your letter No. 67120 dated the 17th Septr. 1931 stating that the value of the machinery transferred from the Electrical Workshop to the Central Industrial Workshop viz., -- - Rs 11,728-3-9 has to be arranged to be paid to your Department as also the hire charges of Rs 3,074/-, I have the honor to state that para 3 of letter No. D. 400/27-28 dated 3rd March 1928 addressed to the Secretary to Government, Development Departments, quoted by you does not indicate that this Department undertook to pay your Department in cash, the value of the machinery transferred to the Central Industrial Workshop. The letter dated the 3rd March 1928 refers to a joint report submitted to Government both by the Chief Electrical Engineer and the Director of Industries recommending - among other matters that the Electrical and the Industries Departments should be given credit for the value of the materials belong -ing to them and transferred to the amalgamated workshop.

The market value of the tools and plant transferred from the Electrical Department was included under the Capital assets of the Central Industrial Workshop in its accounts for the half year ende 31st Decr. 1929 and this fact was also reported to Government in my letter dated the 3rd Febry. 1930. Theadjustments made in the accounts of the workshop as also the disposal of the machinery not required for use by auction , was approved by Government in their order No. D. 11314-15/I & C 297-29-2 dated the 10th April 1930. copy of this order is enclosed for your information.

Further the fact that no payment in cash for the value of the machinery transferred is required to be made to your Department an that the payment of the hire charges claimed by you does not also arise, was reported by me to Government on 12-1-1931 and I enclose an extract from my letter to Government referring to this portion and also a copy of the orders received from Government in the matter (No. D. 8350/I & C 220-30-2 dated 13th Febry. 1931) for your information. The report referred to in para 2 of the above letter from Government was also submitted on 28-5-1931 and a copy of this report is also enclosed. In their letter No. D. 1462/I & C 326-26-20 of the 9th Septr. 1931, a copy of which is also enclosed for your information, Government have observed that the depreciation on that portion of the machinery brought on the fixed assets of the Central Industrial Workshop has to be borne by your Department.

Under these circumstances, it is obvious that as already pointed out previously, no cash payment of the value of the machinery transferred from your Department is required to be made by me.

Appendix F G—1

SUBJECT.....

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Section 9tc

File No. 326-26.

Diary No. of letter replied to.....

Serial No. 20

No. 9 1469

General and Revenue Secretariat

( )

the *193*

To

The Dist. J. Pt.

Date of issue 9.9.31

Signed by Mr. B. [illegible] K

Sir,

With refee to the Correspondence ending with your No. Nil dt. 4.8.27 & 9th Jan 1930 stating among other things that the plant and tools of the value of Rs 9047/ transferred from the Electrical workshop have been in the records of the C.D. Work Main Market value of Rs 7496/; I am directed to observe that the depreciation on their value has to be obtained by the Dept Electrical Dept. and to request you to settle this

List of enclosures.....

Copied by.....

Examined by.....

[over

tion in consultation with the Chief Electrical Engineer.

As regards defining the method of costing and the charges to be charged on work orders from the Electrical & other depts raised in your note 2, I am to request you to submit definite proposals in the matter for the consideration of Govt.

As regards your suggestion that control of the Amalgamated Workshop may be vested in a committee consisting of a few Heads of depts, Govt consider that the existing arrangement in this respect may continue for the present.

Separate orders will be issued.

Regarding the write off of the losses aggregating Rs 97,823-14-2 incurred by the Concern in its working up to the end 1927-28.

17.8.31

Finance — Dev. Secy.

Copy to the C.E.E.

the Comptr.

SPV 19

d 1462